



Carleton University

Ottawa, Canada

1982-83 Undergraduate Calendar



Carleton University



Forty-First Annual
Undergraduate Calendar
for the Academic Year 1982-83



Learning in Canada's Capital

Carleton University
Colonel By Drive
Ottawa, Canada K1S 5B6
Telephone 613-231-4321

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This Calendar is published several months in advance of the beginning of the academic year. The University reserves the right to make whatever changes may be required, including alteration of the various fee schedules and cancellation of particular courses.

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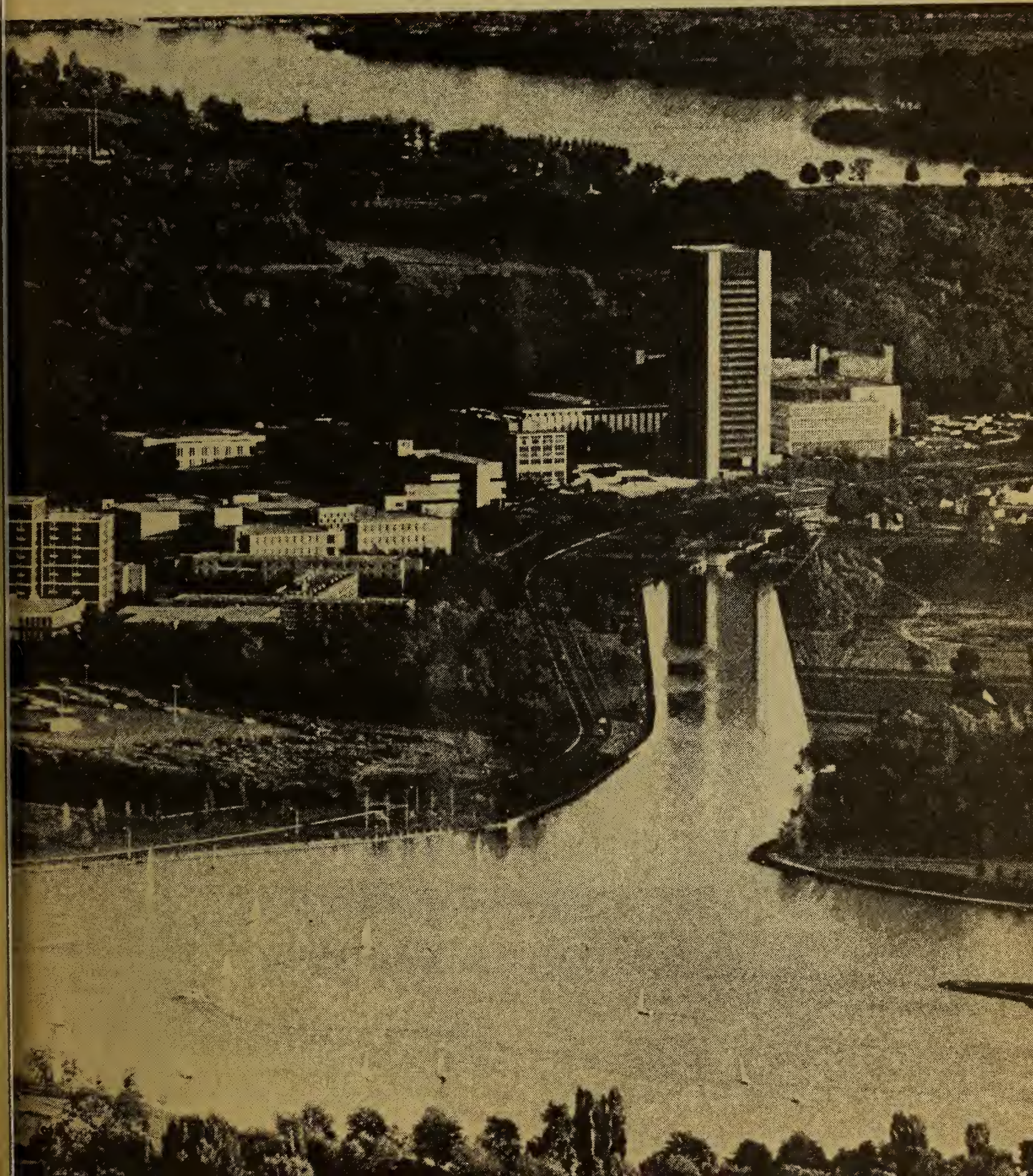
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This is Carleton University



Carleton University, celebrating its fortieth anniversary in 1982, is a university old enough to have an established reputation yet young enough to combine its tradition with innovation in ways to meet the diverse needs of modern students.

Carleton began in 1942 as a non-sectarian part-time college to meet the needs of the many men and women who came to Ottawa to serve the country's war effort. Since that time it has grown and matured and now takes its place proudly as one of Canada's leading, medium-sized universities.

The first "campus" was a few rented classrooms in a high school. Full-time programs were offered for the first time in 1945, and Carleton moved to its own building in downtown Ottawa the following year.

Carleton's continued growth led to another move in 1959 to its present site — a picturesque 152-acre campus, which now has 24 buildings, located between the Rideau River and the historic Rideau Canal. The canal, always popular for boating in the summertime, has gained great wintertime fame in recent years as the world's longest skating rink. One end of that rink is at Carleton's front door; the other end, eight kilometres away, is at the National Arts Centre — a short walk from Parliament Hill.

The Parliament Buildings and the National Arts Centre are just two of the many community resources available to Carleton's students, thanks largely to the University's location in the nation's capital. Museums, art galleries, libraries, embassies and many government departments, national associations and organizations willingly open their doors. The Ottawa area has cultural and recreational facilities to suit every taste and a large number of information and entertainment programs in both English and French.

More than 14,000 full- and part-time students attend Carleton and study with more than 600 full-time faculty members as well as many part-time instructors.

The Faculties of Arts, Science, Social Sciences, Engineering and the School of Computer Science offer programs in architecture, arts, commerce, computer science, engineering, industrial design, journalism, music, public administration and science which lead to bachelor's degrees. Certificates are offered in public service studies, teaching English as a second language, law enforcement studies, English language and composition and French language studies, and there is an undergraduate diploma in music. Courses in English as a second language and a variety of other services are available through the Centre for Applied Language Studies.

The Faculty of Graduate Studies and Research offers 32 master's degree programs in arts, engineering, journalism, science and social work, and 15 doctoral degree programs in arts, engineering and science. In public administration there is a graduate diploma.

The academic reputation Carleton has established in these areas is complemented by exciting interdisciplinary programs in Canadian studies, computer science, criminology and corrections, film studies, integrated science studies, international affairs, mass communication, public administration, public policy and management, and Soviet and East European studies. Courses in several disciplines are devoted to women's studies from both historical and current perspectives. Similarly, courses in several disciplines are devoted to African, Asian and urban studies.

Active continuing education programs carry on Carleton's tradition of serving students wishing to study on a part-time basis. These programs are of particular interest to people who wish to further their education during their working lives for personal interest or to pursue degree programs. Free tuition for senior citizens encourages many older persons to work toward degrees or to take courses for the joy of learning.

"Challenge for Credit" allows older students admitted to Carleton to receive credit in some undergraduate courses based on their personal and work experience outside the University.

A wide range of credit and non-credit courses is offered through continuing education and extension programs on campus. In addition, Carleton reaches out to the community by taking courses to the students. Carleton, through its Neighbourhood University program, offers courses in downtown Ottawa, in various locations around the city and in neighbouring towns in the Ottawa Valley. Some courses are now available to Ottawa area residents in their homes through cable television.

The focus of learning, as at any university, is its library. The MacOdrum Library houses more than a million volumes and almost half a million other items that include an increasing collection of microfilms, archival material, maps, aerial photographs, slides, government documents and prints. Reading rooms housing books and periodicals of specialized interest are maintained by many departments around the campus.

A broad spectrum of recreational, cultural and leisure-time opportunities is open to members of the Carleton community. The multipurpose University Centre has a coffee house, a pub, games room and an arts and crafts workshop. The athletics complex provides facilities for physical recreation in a wide range of activities from individual fitness programs to intercollegiate team competition in a number of sports. Accommodation for more than 1,300 students is provided in Carleton's five residence buildings. Many individual departments offer lively and varied programs of activities. Special-interest clubs, public lectures, concerts, films, live theatre, conferences and conventions bring added depth and new dimensions to life at Carleton.

Introducing Carleton 8

This is just a glimpse of Carleton University, its programs and facilities. The University welcomes enquiries and encourages potential students, their parents and the general public to visit the campus. The offices listed below will be happy to answer any specific enquiries.

Admission and Application for Undergraduate Programs

The Office of Admissions
Room 315, Administration Building
Carleton University
Ottawa, Ontario K1S 5B6
(613) 231-3730

Admission and Application for Graduate Programs

Faculty of Graduate Studies and Research
Room 215, Paterson Hall
Carleton University
Ottawa, Ontario K1S 5B6
(613) 231-4403

Part-Time Studies

Continuing Education
Room 302, Administration Building
Carleton University
Ottawa, Ontario K1S 5B6
(613) 231-6660

Scholarships, Awards and Bursaries

The Awards Office
Room 202, Administration Building
Carleton University
Ottawa, Ontario K1S 5B6
(613) 231-3735

General Information on Undergraduate Academic Programs

The Student Liaison Office
Room 315, Administration Building
Carleton University
Ottawa, Ontario K1S 5B6
(613) 231-2738

Carleton University, a founding member of the Council of Ontario Universities, enjoys full accreditation by the Ministry of Colleges and Universities of the Province of Ontario.

The University is a charter member of the Association of Universities and Colleges of Canada. It is a member of the Association of Commonwealth Universities and participates fully in the Commonwealth Scholarship and Fellowship Plan. It is also a member of the International Association of Universities.

All undergraduate programs in the Faculty of Engineering are fully accredited by the Canadian Accreditation Board. Faculty of Engineering programs meet the academic requirements for registration in the Association of Professional Engineers of Ontario and in similar provincial associations throughout Canada.

The School of Architecture program is recognized by the Association of Architects in each Canadian province, by the National Certification Board, the Royal Architectural Institute of Canada, the Royal Institute of British Architects, and the Commonwealth Association of Architects.

The School of Industrial Design was established at Carleton on the recommendation of a study prepared by the Association of Canadian Industrial Designers. Initial funding for the school was supplied by Design Canada, Ministry of Industry, Trade and Commerce.

The School of Journalism is accredited by the Association for Education in Journalism.

Carleton participates in the Ontario Student Assistance Program and the Canada Student Loans Plan and is fully recognized as one of the few participating institutions outside the province of Quebec for student bursary assistance under the Quebec Student Loan Plan.

Carleton University is recognized by the United States Department of Health, Education and Welfare for student aid to veterans under the Veterans Administration Act, and by the New York State Higher Education Assistance Corporation as an eligible institution for financial assistance to New York students.

Carleton Glossary

The following are some terms frequently used throughout this calendar, together with a brief explanation of their general meaning. *These definitions do not provide the official, complete definition of the terms as they are applied to the interpretation or administration of University regulations and programs, and must not be so construed.*

Auditing

With the permission of a department, students may register in courses as auditors. Auditors receive no grade and no credit for courses audited.

Bachelor's Degree

The first university degree, for which a student follows an undergraduate degree program, (e.g. B.A. — Bachelor of Arts).

Bursary

A monetary award based on good academic standing and financial need.

Calendar

A university publication listing courses, degree requirements, faculty and university regulations, and faculty members.

Dean

The academic head of a faculty.

Discipline

The university equivalent of a "subject" in high school.

Faculty

(a) A major teaching division of the University, divided into departments, schools and, in some cases, committees, and headed by a dean. (e.g. Faculty of Arts);

(b) The academic teaching staff of the University.

Honours Degree Program

A specialized University program, normally four years or 20 full-course credits or their equivalent in length to achieve the degree.

Humanities

Disciplines offered within the Faculty of Arts such as literature, philosophy, languages.

Major

A discipline in which a student specializes.

Major Degree

A university program, normally three years or 15 full-course credits or their equivalent in length to achieve the degree.

Mature Matriculant

A person who lacks normal entrance requirements as published in the calendar, but who is 21 years of age or over by December 31 of the year in which he or she

wishes to enrol, may receive consideration for admission to a degree program either on a full-time or part-time basis.

Ombudsman

A person who deals with individuals' grievances, complaints, requests for information.

Part-Time Student

A student formally admitted to an undergraduate degree program who (a) for the Faculties of Arts, Social Sciences or Science, is taking a maximum of two full-course credits or their equivalent during any academic session; or (b) for the Faculty of Engineering, is taking a program that has the approval of the Faculty.

Prerequisite(s)

A course or courses that must be completed before the student can enter the course described. In most cases, for example, the student must have taken a First-year course in a particular discipline before being admitted to a course in the same discipline at the Second- or Third-year level. The First-year course is, therefore, a prerequisite.

Program

A combination of courses over a specific area or discipline which fulfills requirements for a degree.

Registration

The process of selecting and enrolling in courses for an academic session.

Scholarship

A monetary award based on academic achievement.

Social Sciences

Disciplines offered within the Faculty of Social Sciences such as economics, political science, psychology.

Special Student

A student not admitted to a degree program but taking degree credit courses to qualify for admission, to improve professional or vocational qualifications, for transfer credit, or for personal interest.

Tuition Fees

Fees paid for enrolment in courses.

Undergraduate Student

A university student working towards a bachelor's degree.

Withdrawal

The formal procedure, according to regulations laid down by the University, of withdrawing from a course or courses, or from the University. (See pp. 44 and 49-50.)

Undergraduate Studies

The following schedule contains the dates prescribed by the University Senate for academic activities and for procedures of academic administration.

The academic year is divided into two sessions.

Winter Session

The Winter session commences in September and continues until the end of the examination period in early May. The *First term* of the Winter session consists of the months September to December. The *Second term* consists of the months January to May. Courses are offered during the Day and the Evening.

Summer Session

The Summer session commences in May and continues until the end of the examination period in August. The *Evening division* begins in May and continues until August while the *Day division* begins in July and continues until August. Courses offered in the first or second halves of these periods are designated First- or Second-term courses respectively.

Winter Session 1982-83

April 1

Last day for receipt of applications for admission to a program from candidates whose documents originate outside Canada or the United States, and for candidates who are studying inside Canada on a student visa.

July 1

Last day for receipt of applications for admission to a program from mature matriculants, from those presenting post-secondary education qualifications, and from those transferring from other universities in Canada or the United States.

August 1

Last day to apply for internal degree transfers to allow for September registration without incurring a late registration fee.

August 15

Last day for receipt of applications for admission to a program from Special students applying solely on the basis of Carleton University studies.

September 1

Last day for receipt of applications for admission to a program from applicants with high school qualifications from Canada or the United States except for candidates who are studying inside Canada on a student visa.

Last day for receiving applications for degrees from potential Fall graduates.

Last day for application for degree program transfers for First term of Winter session.

September 6

Statutory holiday, University closed.

September 7 - 10

Registration for Winter session, to be scheduled as announced.

September 13

First term classes begin.

September 24

Last day for late registration and course changes for full courses and First-term half courses.

September 30

Last day for applications for Summer-session supplemental and grade-raising examinations.

October 11

Statutory holiday, University closed.

October 16

Summer-session supplemental, deferred final and grade-raising examinations end.

November

Fall convocation for the conferring of degrees, date to be announced.

November 19

Last day for withdrawal from First-term courses.

December 1

Last day for receiving applications for degrees from potential Winter (February) graduates.

December 10

Last day of First-term classes.

Last day for handing in term assignments, subject to any earlier course deadline.

December 11 - 22

Final examinations in half courses and mid-term examinations in full courses may be scheduled as announced.

January, 1983

Registration for Winter session Second-term courses, dates to be announced.

January 1

Last day for application for degree program transfers for Second term of Winter session.

Academic Year 12

January 3

Second term classes begin.

Last day for receipt of First-term grade reports by faculty registrars, subject to any earlier deadline.

January 14

Last day for late registration and course changes for Second-term courses.

January 31

Last day for applications for First-term supplemental and grade-raising examinations.

February 1

Last day for receiving applications for degrees from potential Spring graduates.

February 18

Last day for withdrawal from full courses.

February 21 - 25

Study period, classes suspended.

February 26

First-term supplemental, deferred final and grade-raising examinations end.

March 5

Last day for receipt of first term supplemental and special examination grade reports by faculty registrars, subject to any earlier deadline.

March 18

Last day for withdrawal from Second-term.

April 1

Statutory holiday. University closed.

April 8

Last day of classes for Winter-session full courses and Second-term courses.

April 13

Last day for handing in term assignments, subject to any earlier course deadline.

April 13 - 30

Final examinations may be scheduled as announced.

May 6

Last day for receipt of grade reports by faculty registrars, subject to any earlier deadline.

June

Spring convocation for conferring of degrees, date to be announced.

June 1

Last day for submission of change of grade reports.

June 30

Last date for applications for supplemental and grade-raising examinations.

August 2 - 12

Supplemental, deferred final and grade-raising examinations may be scheduled as announced.

August 19

Last day for receipt of supplemental and special examination grade reports for Winter session, Second-term and full-courses.

Summer Session 1983

March 1

Last day for receipt of applications for consideration for admission to the Summer session.

May

Registration for Summer Day and Evening divisions, dates to be announced.

May 1

Last day for degree program transfers for the Summer session.

May 16

Summer Evening full-session and First-term classes begin.

May 23

Statutory holiday, University closed.
Classes missed will meet May 27.

May 24

Last day for late registration and course changes for First-term Evening-division courses.
Last day for late registration and course changes for Evening-division full-session courses.

June 14

Last day for withdrawal from First-term Evening-division courses.

June 28

Last day of First term Evening-division. (Note: Full-session Evening division courses resume July 4.)
Last day for handing in term assignments, subject to any earlier course deadline.

June 29, 30

First-term Evening-division final examinations may be scheduled as announced.

July 1

Statutory holiday, University closed.

July 4
Registration for Summer Day division.
Summer-session Day and Second-term Evening
classes begin.

July 8
Last day for late registration and course changes for
Second-term Evening-division courses.
Last day for late registration and course changes for
First-term Day-division courses.
Last day for late registration and course changes for
Day-division full-session courses.

July 15
Last day for withdrawal from First-term Day-division
courses.

July 22
Last day for withdrawal from Evening-division full-
session courses.
Last day for First-term Day-division classes.
Last day for handing in term assignments, subject to
any earlier course deadline.

July 23
First-term Day-division final examinations may be
scheduled as announced.

July 25
Second-term Day-division courses begin.

July 26
Last day for late registration and course changes for
Second-term Day-division courses.

July 29
Last day for withdrawal from Day-division full-session
courses.
Last day for withdrawal from Second-term Evening-
division courses.

August 1
Civic holiday, University closed.
Evening classes missed will meet August 5.

August 3
Last day for withdrawal from Second-term Day-
division courses.

August 12
Last day of Summer-session classes.
Last day for handing in term assignments, subject to
any earlier course deadline.

August 13, 15, 16
Summer-session examinations may be scheduled as
announced.

August 23
Last day for receipt of Summer-session final grade
reports by faculty registrars, subject to any earlier
deadline.

September 30
Last day for applications for Summer-session supple-
mental and grade-raising examinations.

October 15
Summer-session supplemental, deferred final and
grade-raising examinations will be held.

October 21
Last day for receipt of Summer-session supplemental
and special examination grade reports, subject to any
earlier deadline.

General Information

The Organization of the University

Carleton University has Faculties of Arts, Social Sciences, Engineering, Science, and Graduate Studies and Research. In addition there are Schools of Computer Science and Continuing Education. The School of Journalism is associated with the Faculty of Arts. The School of Business, the School of Public Administration and the Institute of Soviet and East European Studies are associated with the Faculty of Social Sciences. The Institute of Biochemistry is associated with the Faculty of Science. The Faculty of Engineering includes the School of Architecture and the School of Industrial Design.

The Faculty of Graduate Studies and Research includes the Institute of Canadian Studies, the Norman Paterson School of International Affairs, the Paterson Centre for International Programs and the School of Social Work.

The University offers programs of undergraduate study leading to bachelors' degrees in arts, journalism, public administration, commerce, music, science, computer science, engineering, architecture and industrial design; and to a certificate in public service studies, a certificate in teaching English as a second language, a certificate in English language and composition, a certificate in law enforcement studies, a certificate in French language studies and a diploma in music. The University's Faculty of Graduate Studies and Research offers programs leading to degrees in Master of Arts, Master of Journalism, Master of Science, Master of Engineering, Master of Social Work, and Doctor of Philosophy studies in certain fields. It also offers a program leading to a Graduate Diploma in Public Administration.

Purpose of the Calendar

The undergraduate calendar outlines requirements for admission, information concerning registration, course load, changes and withdrawals, and examinations. Regulations governing promotion and academic standing are included in the sections of the calendar dealing with each faculty and school. A separate calendar is published by the Faculty of Graduate Studies and Research.

How to Use the Calendar

All students should familiarize themselves with the contents of this calendar and make themselves aware of regulations that apply to them, as prescribed by the University as a whole, by individual faculties, by schools and by departments. The following sections of the calendar are most important in this regard:

1. *General Regulations*: Regulations applicable to students in all faculties and to special students (p. 29.)

2. *Faculty Sections*: There are sections for each undergraduate faculty: (a) Arts and Social Sciences (pp. 89-99), (b) Engineering (p. 299), (c) Science (p. 363). Information on general regulations for each faculty is provided first, and students should make themselves familiar with regulations governing the faculty (and school or institute where applicable) in which they are or will be registered.

3. Following the information on the Schools of Continuing Education and Computer Science, and the general faculty information, the departments of the University are arranged in alphabetical order within the faculty of which they are a member. Students should make themselves familiar with the regulations of every department in which they plan to take courses, including those of faculties other than the one in which they are registered.

4. Interdisciplinary courses are offered for students in all faculties. This section includes courses in African studies, Asian studies, integrated science studies, interdisciplinary courses, technology, society, environment studies, urban studies, women's studies; and a list of courses offered by the various departments which are offered mainly for students registered in other departments ("Courses for Non-Majors").

Please consult the index at the back of the book for guidance in finding detailed information and regulations.

Administration of Regulations

Students are responsible for ensuring that the courses in which they register conform to the requirements of their academic program. The regulations published in this calendar include the main legislation governing admission and standing for undergraduate study as approved by the Senate. Advice on more specific rules or interpretations that may affect a student's registration is available from departmental and faculty registrar's offices.

Students have the right to appeal the application of a regulation, and should enquire about procedures at their faculty registrar's office.

Registrarial Services

Registrarial services are available to students through the following offices:

New Applicants and Prospective Students

The Admissions Office (Student Liaison)
Room 315, Administration Building
Telephone 231-3730

Current Undergraduate Degree, Certificate and Diploma Students

*Faculty of Arts and Faculty of Social Sciences
(including Commerce, Journalism, Music and Public Administration)*

Room 312, Paterson Hall
Telephone 231-6690

*Faculty of Engineering
(including Architecture and Industrial Design)*

Room 353, Mackenzie Building
Telephone 231-4313

Faculty of Science

Room 212, Herzberg Laboratories
Telephone 231-6705

School of Computer Science

Room 212, Herzberg Laboratories
Telephone 231-6705

Special Students and Students Enrolled in Non-Credit Courses

School of Continuing Education

Room 302, Administration Building
Telephone 231-6660

Classification of Students

For purposes of studying at Carleton University and for the administering of regulations governing these studies, the following student classifications are recognized.

Full-Time Undergraduate Student

A student who has been formally admitted to an undergraduate program and who:

1. for the Faculties of Arts, Social Sciences, and Science, and the School of Computer Science, is taking a minimum of four full courses or the equivalent during the Winter session;
2. for the Faculty of Engineering, the School of Architecture and the School of Industrial Design, is following the course load as shown for each year in those programs.

Part-Time Undergraduate Student

A student who has been formally admitted to an undergraduate program and who:

1. for the Faculties of Arts, Social Sciences, and Science, and the School of Computer Science, is taking a maximum of two full courses or the equivalent during any academic session;
2. for the Faculty of Engineering, is taking a program which has the approval of the Faculty.

Special Student

A student who is registered in a degree-credit course or courses but who has not been formally admitted to an undergraduate program.

Extension Student

A student who is registered in a "non-credit" course offered by the Extension Division, Continuing Education.

Distance Education

Each year Carleton University offers a number of undergraduate degree-credit courses at locations away from the University campus. At the present time courses are given in east- and west-end Ottawa, and out of town.

A good selection of credit courses is available during Carleton's regular terms via Instructional Television (ITV), cable channel 15/B.

For further information concerning distance education, contact the School of Continuing Education, Room 302, Administration Building, telephone (613) 231-6660.

Senior Citizens: Tuition Fees

All persons sixty years of age and over as of the last day for late registration may register in degree-credit courses and have their tuition fees waived. The only charge to these students is a \$5.00 per session registration fee.

Other Calendars

Graduate Studies and Research Calendar

Available from:

Dean of Graduate Studies and Research
Room 215, Paterson Hall
Carleton University
Ottawa, Canada K1S 5B6

Summer Session Calendar

Available from:

Continuing Education
Room 302, Administration Building
Carleton University
Ottawa, Ontario K1S 5B6

Course Designation System

Prefix Numbering

Each course number is prefixed by the number or numbers of the department, school or committee under whose auspices the course is offered.

- 04 Interdisciplinary Arts and Social Sciences
- 10 Interdisciplinary Humanities
- 11 Art History
- 12 Canadian Studies
- 13 Classical Civilization
- 14 Classics
- 15 Greek
- 16 Latin
- 17 Comparative Literature
- 18 English
- 19 Film Studies
- 20 French
- 21 English as a Second Language
- 22 German
- 24 History
- 26 Italian
- 27 Mass Communication
- 28 Journalism
- 29 Linguistics
- 30 Music
- 32 Philosophy
- 34 Religion
- 36 Russian
- 38 Spanish
- 41 Accounting
- 42 Management Studies
- 43 Economics
- 45 Geography
- 46 International Affairs
- 47 Political Science
- 49 Psychology
- 50 Public Administration
- 51 Law
- 52 Social Work
- 53 Sociology
- 54 Anthropology
- 55 Soviet and East European Studies
- 56 Sociology-Anthropology
- 59 Multidisciplinary Technology, Society, Environment
- 60 Interdisciplinary Sciences
- 61 Biology
- 63 Biochemistry
- 65 Chemistry
- 67 Geology
- 69 Mathematics (Majors)
- 70 Mathematics (Honours)
- 75 Physics
- 76 Architecture Division A
- 77 Architecture Division B
- 78 Architecture Division C
- 79 Architecture Division D
- 80 Architecture Design
- 82 Civil Engineering
- 85 Industrial Design

- 88 Mechanical and Aeronautical Engineering
- 94 Systems and Computer Engineering
- 95 Computer Science
- 97 Electronics
- 99 Engineering Projects

Course Numbering Pattern

The course numbering pattern is, in general, as follows:

001-099

Courses usually taken in Qualifying University year

100-199

Courses usually taken in First year

200-299

Courses usually taken in Second year

300-399

Courses usually taken in Third year

400-499

Courses ordinarily taken in Fourth-year Engineering, Fourth- and Fifth-years Architecture, and Fourth-year (Honours) Arts, Social Sciences, Science and Computer Science.

500-599

Courses ordinarily taken by Graduate students

Notes

1. Half-credit courses are marked with the symbol★.
2. When the number of an individual course is changed from one year to the next, the former (old) number is noted, for one year only, in parentheses next to the new number.

Programs of graduate study, first offered at Carleton in 1954, provide opportunities for advanced study, research and critical scholarship in a number of disciplines. Carleton's libraries, laboratories, and other research facilities enable graduate students to perform scholarly work of consistently high calibre, and help to foster a spirit of independent investigation.

The location of the University in Ottawa also enables graduate students to take advantage of the research facilities connected with many national institutions and government departments. In addition, through the program of Inter-University Co-operation in Graduate Instruction, full-time graduate students may take some approved credit courses at the University of Ottawa.

Graduate programs currently offered at Carleton are the following:

Graduate Diploma in Public Administration (D.P.A.)

Master of Arts (M.A.)

In Anthropology, Canadian Studies, Classics, Comparative Literature, Economics, English, French, Geography, German, History, International Affairs, Philosophy, Political Science, Psychology, Public Administration, Religion, Spanish, Sociology, and Soviet and East European Studies.

Master of Engineering (M.Eng.)

In Aeronautical, Civil, Electrical, Materials and Mechanical Engineering.

Master of Journalism (M.J.)

Master of Science (M.Sc.)

In Biology, Chemistry, Geology, Information and Systems Science, Mathematics, and Physics.

Master of Social Work (M.S.W.)

Doctor of Philosophy (Ph.D.)

In Biology, Canadian Literature, Chemistry, Economics, Engineering (Aeronautical, Civil, Electrical and Mechanical), English, Geology, History, Mathematics, Physics, Political Science, Psychology, and Sociology.

Joint programs with the University of Ottawa are offered in chemistry, economics, and geology.

Research

Graduate studies and research are closely intertwined at Carleton, as in the case of the Institute of Canadian Studies, the Institute of Soviet and East European Studies, and the Paterson Centre, which provides a focal point for research units in several fields.

Of a less formal nature are the many organized research units in the fields of emergency communications, energy, entomology, jurisprudence, regional linguistics, northern and native studies, renaissance studies, and multi-disciplinary studies in communications.

In addition, many interesting research projects are thriving, which are outlined in the biennial publication *Research and Studies*, available from the Graduate Studies and Research Office, Carleton University, Ottawa, Canada K1S 5B6.

Special Students

Students interested in pursuing graduate studies at Carleton are urged to note the following university regulation: "Course work completed as a Special student is not normally acceptable for degree credit in the Faculty of Graduate Studies and Research."

Graduate Studies and Research Calendar

The studies of each candidate will be directed by a department, institute, or school, and are governed by the general regulations outlined in the Graduate Studies and Research Calendar. To obtain a copy of this calendar, write to:

The Faculty of Graduate Studies and Research
Carleton University
Ottawa, Canada K1S 5B6

University Office Guide

Directory of Academic Offices

Accounting: see Business
Aeronautical Engineering: see Mechanical and Aeronautical Engineering
African Studies: B443 Loeb Building, 231-7100
Anthropology: see Sociology and Anthropology
Architecture: 202 School of Architecture, 231-6380
Art History: 2201 Arts Tower, 231-7156
Asian Studies: 2213 Arts Tower, 231-3863
Biochemistry: 585 Tory Building, 231-4458
Biology: 583 Tory Building, 231-3871
Business: 928 Arts Tower, 231-4373
Canadian Studies: 1109 Arts Tower, 231-4473
Chemistry: 204 Steacie Building, 231-4332
Civil Engineering: see Engineering
Classics: 2015 Arts Tower, 231-3740
Comparative Literature: 1517 Arts Tower, 231-4494
Computer Science: 222 Herzberg Laboratories, 231-7545
Criminology and Corrections: D797 Loeb Building, 231-6650
Directed Interdisciplinary Studies: 1719 Arts Tower, 231-7594
Economics: C876 Loeb Building, 231-4377
Electronics: see Engineering
Engineering: 353 Mackenzie Building, 231-4313
English Language and Literature: 1812 Arts Tower, 231-3847
English as a Second Language: 264 Paterson Hall, 231-5657
Film Studies: 427 St. Patrick's College Building, 231-6755
French: 1604 Arts Tower, 231-3754
Geography: B347 Loeb Building, 231-2641
Geology: 304 Tory Building, 231-2630
German: 1315 Arts Tower, 231-2605
History: 400 Paterson Hall, 231-2777
Industrial Design: 291 Mackenzie Building, 231-5526
Integrated Science Studies: 224 Herzberg Laboratories, 231-6738
Interdisciplinary Studies (Directed): 1726 Arts Tower, 231-4372
International Affairs: 2A55 Paterson Hall, 231-2693
Italian: 1427 Arts Tower, 231-4481
Journalism: 346 St. Patrick's College Building, 231-5530
Law: C473 Loeb Building, 231-7540
Law Enforcement Studies: D794 Loeb Building, 231-6650
Linguistics: 257 Paterson Hall, 231-5573
Management Studies: see Business
Mass Communication: 346 St. Patrick's College Building, 231-5530
Mathematics and Statistics: 716 Arts Tower, 231-5500
Mechanical and Aeronautical Engineering: see Engineering
Music: A911 Loeb Building, 231-3633
Philosophy: 2125 Arts Tower, 231-3868
Physics: 312 Herzberg Laboratories, 231-4346

Political Science: B640 Loeb Building, 231-2697
Psychology: B552 Loeb Building, 231-3636
Public Administration: 1001 Arts Tower, 231-6360
Religion: 2116 Arts Tower, 231-3863
Russian: 1301 Arts Tower, 231-4488
Social Work: 463 St. Patrick's College Building, 231-2680
Sociology and Anthropology: B750 Loeb Building, 231-6650
Soviet and East European Studies: 457 Paterson Hall, 231-2711
Spanish: 1419 Arts Tower, 231-4465
Systems and Computing Engineering: see Engineering
Technology, Society, Environment Studies: 308 MacKenzie Building, 231-2722
Urban Studies: B350 Loeb Building, 231-3616
Women's Studies: 2211 Arts Tower, 231-3863

Hours of Operation

Registrar's Office:

Faculty of Arts (including School of Journalism and Music); and Faculty of Social Sciences (including Schools of Business and Public Administration)

Labour Day to April 30

Monday to Friday 9 a.m.-12 noon; 1-5 p.m.

May to Labour Day

Monday to Friday 9 a.m.-12 noon; 1-4:30 p.m.

Registrar's Office: Faculty of Engineering (including Architecture and Industrial Design)

Labour Day to April 30

Monday to Friday 9 a.m.-12 noon; 1:15-5 p.m.

May to Labour Day

Monday to Friday 8:30 a.m.-12 noon; 1:15-4:30 p.m.

Registrar's Office: Faculty of Science and School of Computer Science

Labour Day to April 30

Monday to Friday 8:30 a.m.-5 p.m.

May to Labour Day

Monday to Friday 8:30 a.m.-4:30 p.m.

Office of Admissions

Monday to Friday 8:30 a.m.-5 p.m.

Continuing Education

Labour Day to April 30

Monday to Friday 9 a.m.-5 p.m.

May to Labour Day

Monday to Friday 8:30 a.m.-4:30 p.m.

Evening Service, Continuing Education and Degree Programs

Monday to Thursday 6:30-8:30 p.m.

Students registered in degree programs may receive evening counter service (general information and forms) from the Continuing Education office.

Business Office

Monday to Friday 9 a.m.-4 p.m.

Evening Service, Business Office

Labour Day to April 30
Monday to Thursday 5-7 p.m.

May to Labour Day
Monday and Thursday 5-7 p.m.

Library

Summer Evening Session
Monday to Thursday 8:30 a.m.-11 p.m.
Friday 8:30 a.m.-6 p.m.
Saturday 10 a.m.-5 p.m.
Sunday 1-8 p.m.

Summer Day Session
Monday to Thursday 8:30 a.m.-11 p.m.
Friday 8:30 a.m.-6 p.m.
Saturday 10 a.m.-10 p.m.
Sunday 1-10 p.m.

Winter Session
Monday to Thursday 8:30 a.m.-11 p.m.
Friday 8:30 a.m.-6 p.m.
Saturday 10 a.m.-10 p.m.
Sunday 12 noon-10 p.m.

Weekend study hours are extended before examinations. When classes are not in session, hours are reduced. The Library closes for all statutory and civic holidays except Easter Monday.

Bookstore

Labour Day to April 30
Monday to Thursday 9 a.m.-9 p.m.
Friday 9 a.m.-4:30 p.m.
Subject to seasonal adjustments.

May to Labour Day
Monday to Thursday 8:30 a.m.-8:30 p.m.
Friday 8:30 a.m.-4:30 p.m.

Counselling

Labour Day to April 30
Monday to Friday 9 a.m.-12 noon; 1-5 p.m.

May to Labour Day
Monday to Friday 8:30 a.m.-12 noon; 1-4:30 p.m.

Health Services (Unicentre)

Monday to Friday 9 a.m.-5 p.m.

After-Hours Health Service
(Level 2, Glengarry House)
September to May
5 p.m.-9 a.m. Monday to Friday
24 hours a day on weekends

Office Locations

Admissions
Room 315, Administration (231-3730)

Alumni Association
Room 605A, Administration (231-3833)

Athletics and Recreation
Room 201, Physical Recreation Centre (231-2646)

Awards Office
Room 202, Administration (231-3735)

Bookstore
Room 403, Southam Hall (231-6616)

Business Office
Room 301, Administration (231-3762)

Canada Employment Centre, Carleton University
Room 508, University Centre (231-2600)

Continuing Education
Room 302, Administration (231-6660)

Counselling
Room 1201, Arts Tower (231-4408)

Development Office
Room 510, Administration (231-4430)

General Information Desk
Administration (231-4321)

Health Services
Level 6, University Centre (231-2755)

Information Carleton
Level 4, University Centre (231-7177)

Information Office
Room 605, Administration (231-3600)

Medical Clinics
Level 6, University Centre (231-2755)
Level 2, Glengarry House (231-3844)

Overseas Students' Advisory Service
Room 1201, Arts Tower (231-3724)

Registrar's Office, Faculties of Arts and Social Sciences
Room 312, Paterson Hall (231-6690), General Office
Room 322, Paterson Hall (231-7407), Counselling Office

Registrar's Office, Faculty of Engineering (including Architecture and Industrial Design)
Room 353, Mackenzie (231-4313)

Registrar's Office, Faculty of Science and School of Computer Science
Room 212, Herzberg Physics Laboratories (231-6705)

Residence Information and Food Services
Rooms 223/225, University Commons (231-3610)

Student Liaison Office
Room 315, Administration (231-2738)

Students' Association
Room 401, University Centre (231-4380)

Athletics and Recreation

Physical Recreation Centre
Telephone 231-2646

The physical recreation program has been designed to meet three general areas of interest: intercollegiate athletics, intramurals, and recreational skill instruction. Although many university students enjoy the challenge and excitement of intercollegiate athletics, others frequently prefer a less demanding level of competition in Carleton's intramural program, while yet another segment of the university community desires physical expression almost completely devoid of all competition.

To meet these needs, skill-instruction classes are offered in squash, dance, yoga, fitness, jiu-jitsu, karate and swimming.

The intramural program includes touch football, softball, soccer, basketball, broomball, volleyball, badminton, swimming, and hockey. A few of these activities are co-educational.

Carleton's Varsity teams for men (The Ravens) participate in basketball, football, soccer, waterpolo, cross-country skiing and fencing. The University is a member of the Ontario Universities Athletic Association.

The women's Varsity teams (The Robins) are members of the Ontario Women's Intercollegiate Athletic Association and participate in basketball, volleyball, cross-country skiing, fencing and synchronized swimming.

The University's present outdoor athletic facilities include football and soccer fields as well as a skating rink and five tennis courts. The indoor facilities consist of a fifty-metre pool and ten-metre diving platform; a fitness centre with jogging track, weight training and fitness testing equipment; and a large double gymnasium with a combatives room and nine international and four American squash courts. The facilities are made available to students either for recreational needs or for organized competition.

The athletic program at Carleton is governed by an Athletic Board comprised of members from the Faculty, Administration and the Students' Association.

Awards Office

Room 202, Administration Building
Telephone 231-3735

Medals are the major academic awards granted by the University to its superior graduating scholars. They have no monetary value.

The Awards Office is responsible for the administration of undergraduate scholarship and bursary programs as well as loans for graduate and undergraduate students.

Scholarships are awarded on entry to the University and to those in course on the basis of superior academic performance. Applications are not required except for the top three entrance scholarships. (See p. 449.)

Awards and prizes are awarded for excellence in particular areas of study. They may be cash awards or book prizes. No applications are required. All full-time in-course students who have obtained A standing will be named Carleton Scholars.

Bursaries are awarded to students who can show genuine evidence of financial need and who have satisfactory academic standing. Students are expected first to apply for provincial assistance. (See below.)

Financial Aid for Students

Administration of Awards

1. Students receiving scholarships and bursaries exceeding in total \$200 and which are under the jurisdiction of the University will ordinarily be paid in two instalments, one in October and one in January. The university reserves the right to withhold the payment of the second instalment in cases where students do not meet the conditions of the award. Awards of \$200 or less will ordinarily be paid in one instalment, in October.

2. Scholarship and bursary recipients who withdraw before the completion of their year will be expected to refund their bursaries or scholarships (or a portion thereof).

Government Aid Programs

Ontario Residents

Canadian citizens or landed immigrants (permanent residents) who are residents of Ontario may qualify for assistance from the Ontario Student Assistance Program. The financial aid scheme is designed to supplement, rather than replace, family and/or student resources. In order to determine the additional funds required, the province objectively assesses the resources of the family and/or the student which could reasonably be used to provide for the student's educational costs. The assistance is in the form of an Ontario Study Grant, a Canada Student Loan and/or Ontario Student Loan. The maximum loan/grant award a student can receive in one academic year is the total amount of his or her allowable educational costs. The average Ontario Student Assistance issued through Carleton University in 1981-82 was \$2,775. Application forms and further information can be obtained by contacting the Awards Office or the Student Awards Branch of the Ministry of Colleges and Universities, Mowat Block, Queen's Park, Toronto, M7A 2B4.

Students wishing to have applications processed in time for Fall registration, must ensure that completed forms are submitted to the Awards Office by July 1.

Part-Time Students

Students enrolled in fewer than four full courses are classified as part-time for the purposes of federal/provincial financial aid schemes. These students are advised to contact the Awards Office for information on the availability of financial aid for part-time study.

Residents of Other Provinces/Territories

Canadian citizens or landed immigrants (permanent residents) from the territories and all other provinces except Quebec may qualify for assistance from the *Canada Student Loans Plan* through their home province. The maximum loan available per academic year is currently \$1,912. The loan is interest free while the student is enrolled full-time and for six months thereafter. Some provinces also make available non-repayable grant assistance along with this federal loan.

The Awards Office disburses general information on the various provincial aid schemes but application forms and details on individual programs must be obtained from the authorities in the home province. Deadline dates vary but generally speaking, it is wise to apply for financial assistance through the appropriate provincial department before *July 15*.

Quebec Aid

Applications from students for assistance from the province of Quebec should be made directly to the Awards Office. Deadline date for submission of applications is *September 30*. In order to be accepted by the Department of Education, all applications must be officially stamped by the Awards Office.

Bursaries

Bursaries administered by Carleton University are awarded to students who have a sound academic standing and who show evidence of genuine financial need.

One application only, available in the Awards Office, is required for bursaries which are administered by Carleton.

For details of medals, scholarships, prizes, bursaries and loans see pp. 449-464.

Regular Officer Training Program (ROTP)

The Department of National Defence sponsors, among other programs of university education, the Regular Officer Training Program (ROTP). Training is divided into two parts, normal attendance at university during the academic year and military training each summer. A period of compulsory military service is also a condition of acceptance into the program. The plan combines university subsidization and career

training as an officer in the regular component of the Canadian Armed Forces, with successful applicants being enrolled in the rank of Officer Cadet.

All tuition and other essential fees and a monthly salary to cover living expenses are paid, free medical and dental care is provided and annual leave may be granted each year.

Students are eligible to apply provided they have at least one full year remaining before graduation. Applicants must be Canadian citizens, be physically fit for enrolment in the armed forces and be at least 16 years of age on January 1 of the year they commence first-year university studies.

For further information, contact the Canadian Forces Recruiting Centre, 360 Laurier Avenue West, Ottawa, telephone (613) 233-4030.

Placement and Career Counselling: Canada Employment Centre

Room 508, University Centre
Telephone 231-2600 or 996-9590

The Placement and Career Counselling Service is provided by Employment and Immigration Canada through the establishment of an on-campus Canada Employment Centre (CEC). The purpose of the service is two-fold.

1. To provide students with readily available access to employment opportunities. To this end the centre maintains job-boards listing part-time, summer and permanent employment opportunities. In addition, each year the centre arranges for a large number of representatives from government, business and industry, both local and national, to recruit at Carleton. While the majority of these visits are for the purpose of recruiting for permanent employment, a number are arranged for undergraduates seeking summer employment. Students interested in participating in this program are advised to contact the centre upon returning to classes in the Fall, because recruiting visits commence early in October.

2. To provide students with information about and assistance in preparing for entry into the labour market. Individual and group counselling, covering such topics as career areas, labour-market trends, the job hunt and résumé preparation, is available to students seeking or preparing for employment. Students can supplement the counselling provided by reviewing materials maintained in the centre's library, as well as by contacting Counselling Services, located in Room 1201, Arts Tower.

All placement and career counselling information may be obtained by contacting the centre or referring to the *CEC Weekly Bulletin* posted throughout the University. The University papers and radio station are additional sources of information from the centre.

Student Housing and Food Services

Residences

Telephone 231-6395

The five residence buildings are located on campus and close to classrooms, the library, and other University facilities. The underground tunnel system makes travel to other University buildings easy in all weather and provides a convenient campus access for handicapped individuals. Each residence building is provided with T.V. lounges, study areas and laundry facilities. Students' rooms are equipped to meet the basic needs of students.

Full-time students of the University are eligible to live in residence, with non-residents of Ottawa being given preference. The residence contract covers the period from September through the Spring examinations except for a short period at Christmas when the facilities are closed.

All residents must participate in the residence meal plan.

To receive a residence application form, students new to Carleton should indicate on the University application that residence is desired. Subsequent residence information will be sent from the Office of Admissions. Residence applications are sent to students concurrently with the offer of admission to full-time study at Carleton. Students who are currently registered at Carleton need only visit the Student Housing Office to obtain an application for residence. For further details about residence services or procedures, students should contact the Student Housing and Food Services Office.

Off-Campus Housing

Telephone 231-3612

The Off-Campus Housing Service is designed to provide assistance in finding suitable accommodation to students who are unable to find or are not interested in on-campus residential housing. Listings range from rooms to private houses, giving the rates and amenities provided. This service has been set up to aid out-of-town students, but it is in no way a rental agency. Listings (not available for distribution) are posted in a glass-enclosed case in the foyer outside Room 223 of the Commons building, and are available 24 hours a day, seven days a week. The University does not undertake to inspect or approve any of the facilities listed by the Off-Campus Housing Section.

In addition a service called "Faculty and Staff Listing" is maintained. This lists houses of staff members going on sabbatical leave for periods ranging from six months to two years. The list is available on request.

Food Services

Telephone 231-6395

A la carte food service is available at five cafeterias on campus:

The Peppermill, second level, Unicentre;
The Schnitzel Shop, first level, Unicentre;
The Loeb Cafeteria, first level, Loeb Building;
The Fit Stop, first level, Physical Recreation Centre;
The Oasis, first level, University Commons

Many vending machines are also distributed around campus for off-hour service or quick drinks and snacks.

People may eat in the Residence Dining Halls, third level, University Commons, either by purchasing one of several meal plans for the entire term or by purchasing a single meal ticket from the Commons Service desk. Once inside the Residence Dining Halls, the meal is self-service all-you-can-eat.

In addition, full catering services are available to provide a banquet, party trays, and bar service for groups of up to 800. They will even bake a birthday cake for you to give to a friend. To arrange for catering services, phone 231-3710.

Tour and Conference Centre

Telephone 231-5510

During the summer months, residences are used in a dual capacity for summer and transient students and for conference delegates. Full conference requirements (room, food services, special catering, meeting rooms, etc.) are handled by this section. Rates and details will be sent out on request.

The arrangement of special functions such as wedding receptions, banquets, parties (large and small) and special meetings come within the scope of this section. Special events may be booked throughout the year.

Health Services

Health Services is provided to protect and improve the physical and mental health of the students and of the university community. Responsibilities are to provide consultation, treatment and advice on matters of health, and to ascertain the fitness of students to perform academic work. When the necessary service cannot be provided by the program, appropriate referrals will be made. Confidentiality is respected at all times.

Health Services has regular hours and is staffed by physicians, nurses and psychiatrists.

The main clinic is on level 6 of the University Centre, open from 9 a.m. to 5 p.m. Monday to Friday. For an appointment call 231-2755.

If you become ill when the Health Services Clinic is closed, you may contact the "After Hours Service" located in Room 226, Glengarry House. A nurse is in attendance from 5 p.m. to 9 a.m. Monday to Friday and 24 hours/day on weekends from September to May. Doctors are on call for those persons (resident and non-resident) requiring immediate attention during these hours. Beds are available for persons who require observation for a few hours or over night.

Psychiatrists are in attendance for those requiring psychiatric assessment or care. The services provided by these facilities are available to all students of the University.

The Co-ordinator for the Program for the Disabled is available to assist those persons who may require special services. Students, faculty and staff may contact the Co-Ordinator for information at 231-3657 or through Health Services.

Medical excuses will not be issued to students by Health Services for examinations and term papers missed because of illness. If confirmation of the illness is required, the instructor may contact the treating physician. A medical certificate does not constitute an appeal. Requests for deferral, etc. should be made to the appropriate Faculty Registrar's Office.

University Counselling Services

The University Counselling Services is an educational resource centre available to all members of the University community. A qualified team of counselling professionals offers the wide range of services and programs listed below.

All contacts with the University Counselling Services are voluntary and strictly confidential. Information is released only upon the request and consent of the client involved. Other types of assistance include appropriate on and off-campus referrals when required and consultation regarding the problems of another person.

The centre is located in Room 1201, Arts Tower, with office hours from 9 a.m. to noon and from 1 to 5 p.m. For further information about services and programs, contact the centre in person or call 231-4408.

Counselling Services

Personal counselling can help individuals deal more effectively with emotional and social concerns. Educational and career counselling involves learning to plan wisely, handle difficulties and make decisions with regard to academic and vocational concerns. Individual and group approaches are used in providing counselling and therapy.

Testing Service

A testing program is designed in consultation with a counsellor and constitutes an individual assessment

according to the type of self-knowledge required. Relevant information generated by interest, personality, and ability test results is used in helping to determine goals and make choices.

Information Service

A resource centre is maintained for use in educational and vocational planning. It includes materials on occupations, university and community college calendars, directories and other types of career literature. Information about other sources of assistance at Carleton and in the greater Ottawa community is also available.

Learning Assistance Service

Group programs or individual counselling are available to students who want to develop better study strategies. Some of the areas where help is available are textbook reading, note-taking, concentration and time management problems, seminar presentations, essay writing and studying for exams.

Foreign Student Advisory Service

Telephone 231-3724

Students from other countries can discuss any concerns pertaining to their particular situation with the staff at the University Counselling Services. Information concerning university education, financial assistance, health coverage, immigration regulations and the general adjustment to a new living situation is available through the service. The advisory service is also a good place for students to make contacts with other foreign students.

A reception service is provided for newly arriving foreign students from the last week of August to the second week of September.

Residence Life Co-ordinating

Students living in residence can receive counselling dealing with any emotional or social concerns.

Group Programs

These programs afford opportunities to be involved in a variety of experiences in which learning is best facilitated through group participation. They are offered periodically throughout the year. The nature and content of programs are publicized along with dates and registration details.

Writing Tutorial Service

The Writing Tutorial Service offers individual tutorials to students who want advice on the writing of university essays. The tutors provide practical instruction on all aspects of the writing process from the initial research and data-gathering, to the exploration and

organization of ideas, through to the final preparation of the manuscript. In addition, the service regularly presents workshops on style and minicourses on the general principles of essay writing; the timetable for such courses is posted around campus and announced in *This Week* and *The Charlatan*. The service is offered free of charge to all Carleton students, part-time and full-time, graduate and undergraduate. For an appointment or information, call 231-6749 or visit Room 1812 Arts Tower from 9:30 a.m. to 4:30 p.m., Monday to Friday.

Facilities for Handicapped Students

The campus of Carleton University is one of the best equipped in Canada for accommodating physically handicapped persons. The buildings are in close proximity to each other and are connected by tunnels. All of the main buildings have elevators and are ramped for outside entrance and egress; most have washrooms equipped for the handicapped.

A guide to the University for the handicapped has been prepared by a club concerned with the problems of the handicapped. For further information contact Co-Ordinator, Program for the Disabled, 231-3657; or Health Services at 231-2755.

Bookstore

The University Bookstore, located in Southam Hall, stocks all required textbooks and offers a wide variety of reference and general books. A complete line of school supplies, imprinted software and gifts are also available.

Bookstore hours are (from Labour Day to May):
Monday through Thursday, 9:00 a.m. to 9:00 p.m.
Friday 9:00 a.m. to 4:30 p.m.

Extended and summer hours are posted at the Bookstore entrance.

The Bookstore has a limited refund and exchange policy at the opening of each term and students are urged to review the policy posted in the Bookstore before buying their texts. *The Bookstore sales receipt is required for any refund or exchange.*

University Centre

The University Centre is the "student building" run largely by the Carleton University Students' Association. The Unicentre, as it is affectionately known, offers recreational and educational services and conveniences that people may need or desire in their daily life on campus, and allows an opportunity to gather in relaxed and informal discussion outside the classroom. The Centre sponsors many events of interest to

the community as a whole. It also encourages individuals and groups to take advantage of the facilities by initiating their own programs.

Services and facilities within the University Centre are: games area, variety and record store, women's centre, pubs, coffee house, a public interest research group, hairstylist, lounges, food services, health services, Canada Employment Centre, travel agency, radio station (CKCU-FM), student newspaper (*The Charlatan*), information services, amateur radio club, photographic club, and the offices of the Ombudsman and the Students' Association. The University Centre also provides rental facilities for both on- and off-campus groups.

Office of the Ombudsman

Jim Kennelly
Ombudsman

Donna Reingold
Assistant Ombudsperson

Room 511, University Centre
Telephone 231-6717

The Office of the Ombudsman deals with a variety of grievances and complaints as well as requests for information. On-campus as well as off-campus problems are handled by the staff (i.e. academic appeals, landlord-and-tenant problems, consumer problems, etc.). Financing of this service is provided by the University and the Students' Association (CUSA). In that way the Office can act as an independent and objective investigator of a complaint.

The Ombudsman's Office also publishes *Survival*, an information guide that should be helpful to all students.

Computer Services

Computing Services
Room 401, Administration Building
Telephone 231-5555

Carleton University offers a modern and wide range of computer services to its students. In addition to two main computing systems, a Honeywell Level 66 and a Xerox Sigma 9, many departments have their own mini- and micro-computer systems applied to current research work. The large main-site systems are generally used to supply service to students for academic work.

The Academic Support Group of the Computing Services Department is staffed by 15 computing professionals who keep programs up to date and who offer a range of consulting services on the correct use and application of Carleton's software. They maintain standard high level language processors for the use of

computer science and programming courses in addition to specialized programs related to various statistical procedures. Comprehensive data analysis packages such as SPSS and BMDP, and the IMSL mathematical library, are available for general research applications as is the SIR scientific data base management system. Several easily-used plotting programs have been developed by the Academic Support Group to facilitate the use of graphics. The Co-ordinator of User Services can provide any interested user with information on available programs.

Carleton University Students' Association

Room 401, University Centre
Telephone 231-4380

The Carleton University Students' Association (CUSA) is a student-run organization that promotes the interests of the student body. Every student at Carleton is a member of CUSA and contributes an annual fee to help pay for the costs of CUSA's diverse activities and operations, and the running of the University Centre.

The policy body or 'government' of CUSA is the 34-member Students' Council, elected annually by the student population. Representation on this body is "rep-by-pop" by faculty, plus a president and finance commissioner elected at large.

CUSA funds and/or operates a variety of services such as the student newspaper (The Charlatan), an FM radio station (Radio Carleton — CKCU), legal aid services, women's centre and peer counselling centre, the Ombudsman's office, various publications including a Course Guide, a Survival Guide, a student handbook and a telephone directory, an assortment of clubs and societies, alternate education programs, speakers series, and an Education Office that offers academic and political information for all students. The Unicentre building on campus is also operated by CUSA and includes a variety store, a record store, a hairstylist, Rooster's Coffee House, Information Carleton, the Games Room, and a pub called Oliver's.

CUSA also represents the students' interest on the political level, as a lobby group, to outline the student point of view to the administration and various government departments. Students at Carleton are also members of the Canadian Federation of Students.

The Students' Association is continually working to improve and expand its sphere of activities. To do so, CUSA welcomes student input and ideas, and individuals as well as groups are encouraged to make their feelings known to the elected members. Remember it's your students' association.

Alumni Association

Room 605A, Administration Building
Telephone 613-231-3833

The Alumni Association encompasses the more than 30,000 graduates of Carleton University. Membership is automatic after receiving a degree, diploma or certificate from the University, or, by application, after a student has completed five full courses.

The objectives of the association are:

- (a)** to contribute to the development of the University, academically and otherwise, and to the effectiveness with which it fulfils its role in society;
- (b)** to establish and maintain mutually beneficial relations and communications between the University and its alumni and among the alumni members themselves;
- (c)** to foster an understanding of the function of the association among the students of the University and the University community generally;
- (d)** to be of service and mutual benefit to the association's membership and the University;
- (e)** such other projects which in the opinion of the Alumni Council may be conveniently carried out under these terms of reference.

The Alumni Association is governed by an elected, 15-member Alumni Council. Information about the activities of the association and the council is available through the Alumni Relations Office.

General Regulations



General Admission Requirements

Persons wishing to follow programs of study leading to a degree, certificate or diploma must be formally admitted to the University.

Persons wishing to register in degree-credit courses without having been formally admitted to the University may do so as Special students. See pp. 36, 57.

Applicants should note that in view of limited accommodation in certain programs, holding the minimum admission requirements can only establish eligibility for selection to the University. This is particularly true for admission to the Bachelor of Architecture, Bachelor of Commerce, Bachelor of Engineering, Bachelor of Industrial Design, Bachelor of Journalism and Bachelor of Computer Science programs.

This publication contains admission requirements for the 1982-83 academic year only. Students wishing to apply for 1983-84 should request a copy of the 1983-84 Admissions brochure, which will include any revisions made since publication of this calendar.

Applicants are reminded that the admission requirements contained herein are guidelines and, as such, are applied with an appropriate degree of flexibility. Individuals who are in any doubt about their eligibility for admission are encouraged to enquire at the Office of Admissions.

In the past few years, considerable flexibility has been introduced into the admission requirements but, at the same time, essential features have been preserved. As admission requirements are subject to continuing review, the University will most certainly make additional changes in the future, but only when convinced that these changes will be in the best interests of the student.

Guidelines have been adopted enabling the University to deal with applications from the most highly experimental schools. High school officials are invited to contact the Office of Admissions if it is felt that these admission requirements cannot accommodate certain programs being offered.

Dates of Entry

Students may be admitted to register in May, and July as well as in September. (See pp. 11-13 for details on the Academic Year.) It should be noted however, that a full range of courses is only offered during the Winter session, i.e. September to May.

Levels of Entry

Students may be admitted to Qualifying University, First or Upper years depending upon academic qualification. Where a student is admitted at the Qualifying University year level, a Major degree program is normally four years in length (i.e. Qualifying University, First, Second, Third) and an Honours degree program

is normally five years in length (i.e. Qualifying University, First, Second, Third, Fourth). Where a student is admitted at the First-year level, the degree program is reduced by one year, i.e. normally three years for a Major degree and four years for an Honours degree. Beyond First year, remaining degree requirements are determined by the total number of credits required for that particular degree program less those credits granted on transfer from previous post-secondary study.

It should be noted that students who are being considered for admission to the Qualifying University year level may, at the time of admission, receive credit for work completed at that level in the Canadian high school system. This is of particular importance if a student elects a concurrent studies program or qualifies for accelerated progress (see below).

Concurrent Studies

Concurrent studies enables local high school students to begin their university studies at the First-year level while completing their Grade 13 programs. Concurrent studies is Carleton's response to the high school credit system and recognizes the fact that many students do not proceed from Grade 13 to university in a "lock-step" fashion. The intention of this feature is to facilitate the transition from secondary to post-secondary studies, thereby extending the "continuous progress" concept that has been so well developed at the elementary and secondary levels.

Any student who has completed the Ontario Grade 12 diploma with a minimum 70% average in addition to one or more Level 5 (Grade 13) subjects may participate. At the time of admission, credit will be granted for those Level 5 courses graded 60% or better which are acceptable for the student's selected degree program. The concurrent program must then be completed in a twelve month period, at which time the requirements on admission will be adjusted to reflect the additional Level 5 work completed.

Note:

Students must successfully complete six Level 5 courses (Ontario Secondary School Honour Graduation Diploma) in order to receive full credit for the Qualifying University year.

Accelerated Progress

Exceptional students who are entering Carleton's Qualifying University year will be interested in the accelerated progress policy. This unique policy is designed to enable very capable students to proceed towards a degree at a rate commensurate with their ability in university work.

Above-average performance is rewarded with a reduction in course requirements. For example, in an arts or science program, the maximum reduction possible under this policy could result in a student obtaining a degree in three years beyond Grade 12. Detailed requirements are shown in the calendar entries for faculties.

Qualifying University Year

This program is roughly equivalent to Ontario Grade 13 and is offered in the Bachelor of Arts, the Bachelor of Engineering and the Bachelor of Science programs. Since all other undergraduate degree programs begin at the First-year level, students interested in these programs must first complete an appropriate Qualifying University year program in either Arts, Engineering or Science. (See Summary on pp. 38-42.)

Certificate and Diploma Programs

In addition to offering ten undergraduate degree programs, for which the admission requirements are stated on the following pages, Carleton offers five certificate programs and one undergraduate diploma program as follows:

Certificate in English Language and Composition

Admission Requirements

A university degree or teaching certificate. This is an in-service certificate intended primarily for practising teachers in order to upgrade their knowledge of those areas of language and of writing theory which underlie the new Ontario guidelines and support documents.

Refer to p. 143 for program details.

Certificate in Public Service Studies

Admission Requirements

Junior matriculation. The cases of experienced applicants without junior matriculation will be considered on their merits and the completion of certain subjects at Carleton may be required before admission. Candidates may be admitted with advanced standing, but must complete at least five courses for the certificate at Carleton University. Students who have completed an undergraduate degree are not eligible for admission to this program.

Refer to p. 257 for program details.

Certificate in the Teaching of English as a Second Language

Admission Requirements

Applicants are admitted on the recommendation of the Department of Linguistics. Applicants have normally completed a first degree in another discipline, or a course of study in a teacher training college. Others with a strong academic background or with experience in the teaching of English as a second language may be admitted with permission of the department.

Refer to p. 213 for program details.

Diploma in Music

Admission Requirements

This program is designed to attract individuals who have a strong background in performance on a musical instrument or voice, have been involved in the

teaching of music, and who are desirous of obtaining additional academic qualifications.

Applicants will be admitted on the basis of an audition to be held in the Spring of each year. Although normal admission requirements are senior matriculation and an adequate level of performance, special consideration will be extended to other applicants under mature matriculation regulations.

Refer to p. 223 for program details.

Certificate in Law Enforcement Studies

Admission Requirements

Senior matriculation with a 60% overall average, or mature matriculation, or junior matriculation and three years service in a police force (or equivalent agency). The cases of experienced applicants without junior matriculation will be considered on their individual merit, and the completion of certain subjects at Carleton may be required before admission, as provided by the University's mature matriculation policy. Candidates may be admitted with advanced standing, but must complete at least five courses for the certificate at Carleton.

Refer to p. 212 for program details.

Certificate in French Language Studies

Admission Requirements

1. Senior matriculation with a 60% overall average, or mature matriculation; and
2. Facility in French to the completion of French 20.102. Candidates lacking this prerequisite will be expected to complete French 20.102 or equivalent before entering the program. Candidates already fluent in French to the level of French 20.111 or 20.112 will be required to take three full credits at the 300 level. Candidates for the certificate program will be required to pass a placement examination upon entry.

Refer to p. 158 for program details.

High School Applicants

Ontario

The basic admission requirement is the completion of the Ontario Secondary School Graduation Diploma (Grade 12) with a minimum 70% average. Students who have successfully attained this level will be considered for admission to the Qualifying University year.

To be considered for admission to the First year, which is the usual level of entry, a student must successfully complete the Ontario Secondary School Honour Graduation Diploma (Grade 13) with a minimum 60% average. Students who have partially completed Grade 13 and who are not participating in the concurrent studies program (see above) will be considered for possible advanced standing at the Qualifying University year level. A later assessment might

also be possible under the accelerated progress feature. (See p. 31.)

Detailed admission requirements for each undergraduate degree program can be found in chart form on pp. 38-42.

Carleton University utilizes, for admission purposes, the credit system as defined by the Ministry of Education for Ontario. In calculating averages, the weighting factor assigned to a subject will be directly proportional to the credit value of that subject.

Quebec

Students from the Province of Quebec may apply for admission to Carleton University either upon completion of the Secondary V Certificate or after completing work towards the Collegial Diploma. (See Quebec CEGEPs, p. 35.)

Students applying on the basis of high school studies will be considered for admission to the Qualifying University year as follows:

General Statement

The Quebec Secondary V Certificate, with a minimum 75% average and including six, two-unit, college preparatory subjects at the Secondary V level. Applicants are cautioned, however, that because of enrolment restrictions, a somewhat higher average may be required to gain admission.

Individual Degree Program Requirements

Bachelor of Arts

Secondary V work to include two of: English; a language other than English; mathematics (functions).

Bachelor of Engineering

Secondary V work to include: mathematics (functions); chemistry; physics.

Bachelor of Science

Secondary V work to include: mathematics (functions); two natural sciences (chemistry and physics).

Students who have completed a Grade 12 program will be considered for admission to First year.

Other Canadian Provinces

Applicants to degree programs at Carleton must normally be admissible to a university in their own province.

Applicants who have completed high school in Newfoundland are considered for admission to Qualifying University year. A minimum 75% average is required on the subjects presented for admission consideration. As well, for admission to Qualifying University year in the Faculties of Science or Engineering, a minimum 75% average in mathematics, physics and chemistry should be presented. For admission consideration

to Qualifying University year in Bachelor of Arts programs, subjects should include two of: English, a language other than English, mathematics.

Students who achieve at a high level in their first ten courses at Carleton University may have their program assessed for a possible reduction in degree requirements. (See Accelerated Progress, p. 31.)

From the Canadian provinces and territories whose pre-university studies culminate in 12 years of schooling, graduates are considered for direct admission into First year, the normal level of entry to begin degree studies in Ontario universities after successful completion of the Ontario Secondary School Honour Graduation Diploma (Grade 13). At the present time, graduates from high schools in the following provinces are considered for admission, provided a minimum over-all average of 60% has been maintained in the final year of schooling:

Alberta and the Northwest Territories
British Columbia and The Yukon
Manitoba
New Brunswick
Nova Scotia
Prince Edward Island
Saskatchewan

It is recognized that the curriculum of some provinces does not include an introductory course in calculus, or a final year mathematics course may have only a few weeks of an introduction to calculus, or only a few schools in a particular province or territory may offer a calculus course to a selected group of students. In instances where no calculus is presented, and there is a requirement for it in the University program to which the student is admitted, adjustments may have to be made to include Mathematics 69.007★ (Calculus) as an extra half-course beyond the normal degree program requirements.

Other High School Systems

Applicants who have completed high school diploma requirements in other than Canadian high school systems will be considered for admission at the appropriate level of entry. Individuals from foreign systems of education will be considered for admission to the Qualifying University year only if they are able to present sufficient evidence that their secondary school background is appropriate to this level of entry with respect to academic content and level of achievement.

Generally speaking, such applicants must meet requirements for admission to a university in their own country.

The following certificates, recognized as approximately equivalent to the Ontario Secondary School Graduation Diploma (Grade 12), may be accepted to meet admission requirements to the Qualifying University year:

United States: High School Graduation (Grade 12).

United Kingdom, West Indies, East and West Africa, Hong Kong: The General Certificate of Education (or equivalent) with satisfactory standing in five subjects at the Ordinary Level (or equivalent), at one sitting.

Note:

Students who achieve at a high level may qualify for a possible reduction in degree requirements. (See Accelerated Progress, p. 31.)

The following certificates, recognized as approximately equivalent to the Ontario Secondary School Honour Graduation Diploma (Grade 13), may be accepted to meet admission requirements to the First year:

United Kingdom, West Indies, East and West Africa, Hong Kong: The General Certificate of Education (or the equivalent) with satisfactory standing in five subjects at Ordinary Level and two suitable subjects at Advanced Level, the latter completed at one sitting.

International: The International Baccalaureate.

United States: Graduates of an American high school (either in the United States proper or in an international school following an American curriculum) are not eligible for admission to the First year of a degree program. (Students who have completed the freshman year at an American university will be considered for admission to the First year. See below for transfers from post-secondary institutions.)

Special Requirements for Overseas Students

Proficiency in English

Since the instructional language of the University is English, applicants must be able to understand and be understood in English, both written and oral. Applicants whose mother tongue is a language other than English must clearly exhibit this ability by the results of the Test of English as a Foreign Language (TOEFL) given by the College Entrance Examination Board.

Translation of Documents

The University must be in receipt of all official documents by July 1. Applicants from non-English speaking countries must arrange to submit certified English translations of their academic documents.

Financial Information

1. Current immigration laws do not normally permit foreign students to seek employment in Canada to assist themselves in paying any part of their education expenses. In addition, the University has no scholarships or financial assistance plans available for incoming foreign students at the Undergraduate level.

2. The annual composite University fee (including tuition) for 1981-82 was approximately \$2,000 (Canadian funds) for one academic session (September-April). It is estimated that at least an additional \$3,500 would be required to meet other expenses for that period. If a student plans to travel, additional funds will be needed. If a student intends to bring dependents, substantial additional funds are required.

Transfers from Post-Secondary Institutions

Residence Requirement

In order to qualify for a Bachelor's degree, or a certificate or diploma from Carleton University, an undergraduate student must complete at Carleton University at least the equivalent of the final year of that degree program, or at least five full course credits for any certificate or diploma.

When a faculty of the University further specifies "core", level, and detailed departmental requirements, such as Design Project or Honours Thesis, these must also be fulfilled.

Other Universities

Students applying from other recognized universities may be admitted with advanced standing if they are eligible to continue at the institution from which they wish to transfer.

An applicant who is attending or has attended institutions of post-secondary education must present:

1. *Official Certified Transcripts* of academic records mailed directly to this University by the registrars of the institutions attended;
2. In addition, applicants who have taken only one year of study past the secondary school level may be required to submit an official transcript of high school marks mailed directly to this University by the principal of the high school concerned.

Credit may be received for courses taken at other recognized degree-granting institutions:

- (a) If courses are relevant to a student's proposed program; and
- (b) if the appropriate department recommends that such courses be credited to a student's program. Each application will be evaluated on its own merits.

Students who apply for admission to an undergraduate degree program who already possess an undergraduate degree either from Carleton or another university, are required to complete a minimum of one year's academic work at Carleton University as specified by the department in which the degree is to be taken in order to qualify for another undergraduate degree.

Provisional Admission

Select transfer applicants (those who have attended only one Canadian university or Quebec CEGEP and have demonstrated better than average academic achievement) will automatically be considered for provisional admission. The provisional approval will be given prior to the completion of the student's current year, and will provide a detailed statement of the credits to be granted upon transfer. Admission will be confirmed upon presentation of a final transcript which indicates the successful completion of all courses with suitable standing.

Ontario Colleges of Applied Arts and Technology (CAAT)

Students from Ontario Colleges of Applied Arts and Technology who present a minimum Second-Class Honours standing will be considered for admission to the University and may receive advanced standing to a maximum of the equivalence of First year. Assessments regarding admission and advanced standing will be based on the following guidelines:

1. Applicants who have achieved an overall Second-Class standing or better or who have Second-Class standing or better in the last two semesters in a three year CAAT program will be considered for admission with advanced standing to a maximum of five courses (equivalent to one year). The advanced standing would be granted according to the appropriateness of the CAAT program, the course concentration and the achievement in relevant courses.

2. Applicants who have achieved an overall Second-Class standing or better, or who have Second-Class standing or better in the last two semesters of a two-year program will be considered for admission. While such applicants will normally not receive advanced standing, exceptional applicants can receive advanced standing on the recommendation of the appropriate academic department(s).

3. Applicants who have completed two years of a three-year program and who have achieved an overall Second-Class standing or better, or who have Second-Class standing or better in the last two semesters, will be considered for admission. While such applicants will normally not receive advanced standing, exceptional applicants can receive advanced standing on the recommendation of the appropriate academic department(s).

4. Applicants who have completed the first year of a three-year CAAT program with an overall First-Class standing will be considered for admission to First year of an appropriate University program.

5. On a trial basis, graduates of a two-year or a three-year CAAT program or applicants who have completed two years of a three-year CAAT program who do not meet the minimum published requirements but who are presenting *Third-Class standing* may receive special consideration on an individual basis.

Other students presenting an incomplete program normally will not be considered for admission to Carleton University on the basis of that program. Such persons may enquire about possible alternatives if they are desirous of seeking admission to a Carleton University degree program at some future date.

Quebec CEGEPs

Students from Quebec CEGEPs who present a minimum Third-Class Honours standing will be consi-

dered for admission to the University and may receive advanced standing to a maximum of the equivalence of First year.

Guidelines for First Year

In general, students who have successfully completed the First year of the "General" or pre-university program (or the equivalent program) with minimum Third-Class Honours standing are eligible to be considered for admission to the First year.

Although specific subject requirements have been kept to a minimum, the following are considered necessary prerequisites for the degree program indicated:

Bachelor of Architecture: mathematics, physics.

Bachelor of Arts: none specified.

Bachelor of Commerce: mathematics.

Bachelor of Computer Science: mathematics; physics required for some options, recommended for all others.

Bachelor of Engineering: mathematics; physics; chemistry.

Bachelor of Industrial Design: mathematics; physics; chemistry.

Bachelor of Journalism: language other than English (French recommended).

Bachelor of Music: none specified.

Bachelor of Science: mathematics; two experimental sciences.

Students who have enrolled in the "General" program, but who have not successfully completed the First year will not normally be considered for admission. Students with an incorrect pattern of courses will have their records reviewed on an individual basis.

Guidelines for Second Year

Students successfully completing two years of the "General" CEGEP program or the equivalent, with minimum Third-Class Honours standing will be considered for admission and may receive advanced standing to a maximum of the equivalence of First year.

Once students have enrolled in the Second year of the CEGEP program, they must meet the published standard for that level and cannot then be considered solely on the basis of their First year's academic work.

Note:

Students who make application on the basis of Second-year studies expecting advanced standing must submit detailed course descriptions upon request.

Mature and Special Admissions

Mature Matriculation

Persons who lack the normal entrance requirements as published in this calendar may receive consideration for admission under the mature matriculation policy. Applicants will normally have been away from full-time studies for a minimum of two years and must be twenty-one years of age, or over, by December 31 of the year in which they wish to enrol.

Any person who meets the age requirement is eligible to be considered for admission as a mature matriculant to either part-time or full-time studies. This category is, however, designed for individuals who do not meet normal admission requirements but who would probably be successful in university studies.

Persons who satisfy the foregoing requirements will normally be admitted to a degree program if:

- (a) they have secondary school graduation in an academic program with a 60% average; or
- (b) they have completed, at Carleton, one appropriate full course credit with a C- or higher standing, in one attempt; or
- (c) they have other academic or work experience which, in the opinion of the admission committee, indicates a likelihood of success at university.

Only Canadian citizens and permanent residents are considered for admission as mature matriculants. Persons who have previously been involved in a university- or college-level program as full-time students are not normally eligible for consideration as mature matriculants, regardless of age. These individuals are assessed for admission on the basis of their most recent academic experience.

Mature matriculants are normally considered for admission to the First year of an undergraduate program in arts, science or engineering. Students seeking admission to the Faculty of Science who do not hold the necessary prerequisites may be required to take Qualifying University year courses in addition to the regular program. Students in a similar situation in relation to the Faculty of Engineering will not normally be considered until such time as the necessary prerequisites have been completed.

Mature matriculants are not usually considered for entry into Honours programs (i.e. commerce, journalism) or into architecture or industrial design. If, however, at the end of their First year they meet the requirements for an Honours program, they may apply to transfer to the program of their choice.

Applicants are required to submit proof of age and biographical information with their application for admission.

Special students at Carleton University who meet the age requirement will normally be considered for admission as mature matriculants if:

- (a) they have obtained a grade of C- or better in at least one full course (or equivalent); and
- (b) they are eligible to continue as Special students.

Individuals contemplating mature matriculation are invited to seek advice at one of the following offices:

The Office of Admissions;
School of Continuing Education.

Special Students

Special students may be admitted to degree study upon indicating, through academic achievement at Carleton, a reasonable probability of future academic success. However, previous post-secondary studies will be taken into consideration at the time an application for admission is evaluated. Students with previous, unsuccessful post-secondary studies are encouraged to contact the Office of Admissions before attempting to qualify for admission on the basis of Special studies.

Normally, in the Faculty of Arts and the Faculty of Social Sciences, a Special student will be admitted after passing at least four full courses with a C- standing or higher in at least two full courses or equivalent.

Normally, in the Faculty of Science, a Special student will be admitted after passing at least four *approved* full courses with a C- standing or higher in at least two full courses or equivalent.

Note:

Students who perform at a higher level may gain admission after fewer courses, i.e. an A- average on two successive full courses or a B- average on three successive full courses.

Special students seeking admission must meet the requirements within the previous six full courses preceding formal application for admission and may not present more than two supplemental or grade-raising examinations in meeting the requirements for admission.

Special students who meet the age requirement for mature matriculation will normally only be considered on this basis if they have obtained a grade of C- or better in at least one full course (or equivalent) and are eligible to continue as Special students.

Previous Carleton Students

All former students who had been formally admitted to a degree, certificate or diploma at the undergraduate level, and who are seeking readmission either to that program or to another program, are governed by differing regulations, depending upon the faculty or school that offers the program.

Please refer to the relevant program section of this calendar or, if there is no specific entry dealing with readmission in that section, consult the appropriate faculty registrar's office to determine whether or not it is necessary to submit a new application for admission.

Admission Procedures

How to Apply

Prospective students, when requesting an application directly from the University, should provide a complete outline of their academic background.

The following applicants must apply through the Ontario Universities' Application Centre:

1. Current Ontario Grade 12 and Grade 13 students should obtain a preprinted application form from their high school and arrange to have it submitted to the Application Centre.
2. Other applicants should obtain a common application form from the Office of Admissions, Carleton University, and submit this completed form to the Application Centre.
3. All applicants are required to reveal all previous secondary and post-secondary studies (whether they were successfully completed or not) when completing the application for admission.
4. When more than one application choice is directed to Carleton, only the first choice is initially processed. In the event that admission cannot be approved for this program, the applicant will automatically be considered for other choices.

Applicants who have previously registered at Carleton are exempt from the foregoing procedures. These students should request a Carleton application form from the Office of Admissions and submit the completed form directly to that office.

Application Deadlines

The following are application dates for the 1982 admission year:

April 1: Candidates whose documents originate outside Canada or the United States.

April 1: Candidates who are studying in Canada on a student visa.

July 1: Applicants for transfer from other universities and colleges in Canada or the United States.

July 1: Candidates applying as mature matriculants.

August 15: Candidates applying for admission solely on the basis of work completed as Special students at Carleton University.

September 1: High school candidates whose documents originate in Canada or the United States.

Early Admission

Offers of early admission will be based on the previous year final and current year interim marks.

For Ontario high school applicants, offers will not be released before June 11. The onus is on the student who does not receive an offer of early admission to supply official final marks to the Office of Admissions.

Out-of-province applicants will receive an offer of admission as soon as interim marks are received by the University and the assessment completed.

Carleton reserves the right to withdraw offers of admission for failure to complete the school year satisfactorily. In addition, applicants are advised that although they may receive an offer of admission based on interim marks, final marks, when they are received, will become part of the University's admission record.

Summary of Undergraduate Degree Programs

Architecture

Degree

B. Arch.

Length of Course from Junior Matriculation

6 years

Length of Course from Senior Matriculation

5 years

Admission Requirements, Qualifying University Year

As there is no Qualifying University year in Architecture, students must complete this level of study in high school or by registering in either Qualifying University year Science or Engineering in an appropriate course pattern. Hence, the admission requirements at this level are those for Qualifying University year Science or for Qualifying University year Engineering as stated elsewhere in this chart.

Admission Requirements, First Year

The Ontario Secondary School Honour Graduation Diploma, or the equivalent, with a minimum 60% average and including Functions, Calculus and Physics; or the successful completion of Qualifying University year with an appropriate course pattern.

Admission requirements are for the 1982-83 year only, and are based on the Ontario High School system. Holding the minimum admission requirements only establishes eligibility for consideration.

Arts

Degrees

B.A.

B.A. (Honours)

Length of Course from Junior Matriculation

4 years

5 years for Honours

Length of Course from Senior Matriculation

3 years

4 years for Honours

Admission Requirements, Qualifying University Year

The Ontario Secondary School Graduation Diploma, a 70% average must be presented on a minimum of ten Advanced or Enriched Phase credits at levels 3 and 4, including two of English, a language other than English or Mathematics, at Level 4.

Admission Requirements, First Year

The Ontario Secondary School Honour Graduation Diploma, or the equivalent, with a minimum 60% average; or the successful completion of Qualifying University year Arts.

For Honours: 65% on the Honour Graduation Diploma, or the equivalent.

For a Major in Mathematics, Functions and Calculus, or the equivalent (Mathematics 69.006★ and 69.007★) must be included; for a Major in Biology or Psychology it is recommended that they be included. For a Major in Psychology, English is also recommended. Students intending to major in Biology should, in addition, present Chemistry. Students intending to major in Canadian Studies should present French.

For a Major in Economics, students lacking Grade 13 Mathematics should take Mathematics 69.006★ and 69.007★. These will be counted as a credit toward a Major or Honours degree in Economics.

Commerce

Degree

B.Com. (Honours)

Length of Course from Junior Matriculation

5 years

Length of Course from Senior Matriculation

4 years

Admission Requirements, Qualifying University Year

As there is no Qualifying University year in Commerce, students must complete this level of study either in high school or by registering in Qualifying University year Arts in an appropriate course pattern. Hence, the admission requirements at this level are those for Qualifying University year Arts as stated elsewhere in this chart.

Admission Requirements, First Year

The Ontario Secondary School Honour Graduation Diploma, or the equivalent, with a minimum 65% average, including Functions and Calculus; or the successful completion of Qualifying University year, with an appropriate course pattern.

Computer Science

Degree

B.C.S. (Honours)

Length of Course from Junior Matriculation

5 years

Length of Course from Senior Matriculation

4 years

Admission Requirements, Qualifying University Year

As there is no Qualifying University year in Computer Science, students must complete this level of study in high school or by registering in an appropriate course pattern in Qualifying University year Arts, Science or Engineering.

Admission Requirements, First Year

The Ontario Secondary School Honour Graduation Diploma with a minimum 65% average and including Functions and Calculus. Physics is required for the Hardware and Scientific Applications areas of specialization and would be advantageous for the remaining areas.

Engineering

Degree

B. Eng.

Length of Course from Junior Matriculation

5 years

Length of Course from Senior Matriculation

4 years

Admission Requirements, Qualifying University Year

The Ontario Secondary School Graduation Diploma. A 70% average must be presented on a minimum of ten Advanced or Enriched Phase credits at levels 3 and 4 including an appropriate preparation in Chemistry, Physics and Level 4 Mathematics.

Admission Requirements, First Year

The Ontario Secondary School Honour Graduation Diploma with a minimum 65% average and including Functions, Calculus, Chemistry and Physics, or the successful completion of Qualifying University year with an appropriate course pattern. A student unable to meet the specific course requirements but otherwise admissible to Carleton University may be admitted to the Faculty of Engineering, but will be required to satisfy the outstanding requirements at the Qualifying University year level.

Industrial Design

Degree

B.I.D.

Length of Course from Junior Matriculation

5 years

Length of Course from Senior Matriculation

4 years

Admission Requirements, Qualifying University Year

As there is no Qualifying University year in Industrial Design, students must complete this level of study in high school or by registering in either Qualifying University year Science or Engineering in an appropriate course pattern. Hence, the admission requirements at this level are those for Qualifying University year Science or for Qualifying University year Engineering as stated elsewhere in this chart.

Admission Requirements, First Year

The Ontario Secondary School Honour Graduation Diploma with a minimum 65% average and including Functions, Calculus, Chemistry and Physics or the successful completion of Qualifying University year with an appropriate course pattern.

Journalism

Degree

B.J. (Honours)

Length of Course from Junior Matriculation

5 years

Length of Course from Senior Matriculation

4 years

Admission Requirements, Qualifying University Year

As there is no Qualifying University year in Journalism, students must complete this level of study either in high school or by registering in Qualifying University year Arts in an appropriate course pattern. Hence, the admission requirements at this level are those for Qualifying University year Arts as stated elsewhere in this chart.

Admission Requirements, First Year

The Ontario Secondary School Honour Graduation Diploma, or the equivalent, with a minimum 65% average, including a language other than English (French is recommended); or the successful completion of Qualifying University year with an appropriate course pattern.

Music

Degree

B.Mus. (Honours)

Length of Course from Junior Matriculation

5 years

Length of Course from Senior Matriculation

4 years

Admission Requirements, Qualifying University Year

As there is no Qualifying University year in Music, students must complete this level of study either in high school or by registering in Qualifying University year Arts. Hence, the admission requirements at this level are those for Qualifying University year Arts as stated elsewhere in this chart.

Admission Requirements, First Year

The Ontario Secondary School Honour Graduation Diploma, or the equivalent, with a minimum 65% average; or the successful completion of Qualifying University year.

Public Administration

Degree

B.P.A. (Honours)

Length of Course from Junior Matriculation

5 years

Length of Course from Senior Matriculation

4 years

Admission Requirements, Qualifying University Year

As there is no Qualifying University year in Public Administration, students must complete this level of study either in high school or by registering in Qualifying University year Arts. Hence, the admission requirements at this level are those for Qualifying University year Arts as stated elsewhere in this chart.

Admission Requirements, First Year

The Ontario Secondary School Honour Graduation Diploma, or the equivalent, with a minimum 65% average; or the successful completion of Qualifying University year.

Science

Degrees

B.Sc.

B.Sc. (Honours)

Length of Course from Junior Matriculation

4 years

5 years for Honours

Length of Course from Senior Matriculation

3 years

4 years for Honours

Admission Requirements, Qualifying University Year

The Ontario Secondary School Graduation Diploma. A 70% average must be presented on a minimum of ten Advanced or Enriched Phase credits at Levels 3 and 4, including an appropriate preparation in Chemistry, Physics and Level 4 Mathematics.

Admission Requirements, First Year

The Ontario Secondary School Honour Graduation Diploma, or the equivalent, with a minimum 60% average, and including Functions, Calculus and two Sciences; or the successful completion of Qualifying University year with an appropriate course pattern.

For Honours: 65% on the Honour Graduation Diploma, or the equivalent. For Honours in Psychology Level 5 English is recommended.

Requirements

All students attending the University are required to register in their courses with the registrar's office of the appropriate jurisdiction at the time designated for the session, and to inform that office in writing of any changes in registration.

Students who do not register at times designated for their session will be charged a late registration fee. (See p. 49.)

A student's registration shall not be considered to be complete until arrangements have been made for the discharge of all financial responsibilities to the University in accordance with the University policies.

No student will be permitted to register until all outstanding accounts due to the University have been paid. (See Delinquent Accounts, p. 50.)

Health Service Requirements:

See p. 52.

Course Selection

Students proceeding to a degree, diploma or certificate must select their courses according to the requirements set by their faculty or school, and major department.

Students planning to undertake professional training beyond their undergraduate studies should ensure that their programs meet the requirements of admission to their intended school or faculty.

Cross-Referenced Courses

Some courses appear in the calendar more than once. These cross-referenced courses may be taken in any of the departments under which the course is listed. Students are advised, however, to consult with their major department as to the appropriate designation, assigned to the course, for their program of study.

The departmental designation may not be changed after the last date for withdrawal in any term or session.

Challenge for Credit

Challenge for Credit is a Carleton University policy that enables students to gain undergraduate academic credit for their own learning and experience outside the university.

Simply stated, Challenge for Credit gives the student the opportunity to be examined on, and receive credit for, a recognized Carleton course without meeting the normal requirements of registration, attendance, and

instruction. The student first challenges the academic department with evidence that he or she has adequate experience and learning relevant to the course in question. If the department is satisfied with this evidence it accepts the challenge, and sets an appropriate examination. If the student is successful in the examination, the course is credited to his or her academic record. Challenge for Credit is available only to students formally admitted to and registered in a program leading to a degree, diploma, or certificate. Special students are not eligible to challenge for credit.

Students wishing to challenge a course for credit should enquire at their faculty registrar's office.

Transfer of Credit for Courses Completed at Other Universities

1. Prior to Admission

At the time a student is considered for admission, credit may be granted for individual courses successfully completed at other recognized, degree-granting institutions, if:

- (a) the individual courses are relevant to a student's proposed program; and
- (b) the appropriate academic department recommends such action.

Each application is evaluated on its own merits.

2. Subsequent to Admission

Students who have been formally admitted to a Carleton degree or certificate program may take courses at another university and have the credit transferred to their program if prior permission is received, according to established faculty procedures, before commencing the course.

Auditing Courses

A student may, with the instructor's consent, register to audit a course (i.e. attend without receiving credit), in addition to those courses being taken for credit. Although audited courses receive no academic credit, they are counted as part of the total course load.

Full-time students may register to audit a course without an additional fee; all others must pay the regular course fee.

Students who enrol to audit must so indicate on their registration form or course-change form. In the Faculties of Engineering and Science, the deadline for change from audit to credit or credit to audit is the last day for course changes. Students in the faculties of Arts and Social Sciences, refer to p. 93.

Course Changes

Changes of course or changes of section within a course must be applied for at the appropriate faculty registrar's office. Changes must be made by the dates designated in the calendar under the Academic Year and must be approved by the major department. Changes of course include changes of status from credit to audit or audit to credit. (See Fees pp. 48-50.)

Program Changes

Students wishing to change faculty or school, or change majors, or change between major and honours, must apply to make such changes. Applications should be made at the registrar's office of the faculty in which the student is registered, after consultation with the faculty, school or departments concerned.

Changes in major may be effected at any time of the year.

Students wishing to change from a major to an honours program should submit an application on or before October 1.

The deadlines for application for degree program changes are:

Winter Session

1. First term: September 1.
2. Second term: January 1.

Summer Session

May 1.

Withdrawal

Students who are withdrawing from a course or courses, or entirely from the University, must notify their appropriate faculty registrar's office, either on the specific form designated for the purpose and available from that office, or by letter.

The official date of withdrawal for academic notice is the date on which the notification is received in the faculty registrar's office. Partial refund of fees for students withdrawing from a course or courses, but not entirely from the University, will also be calculated as of that date. In order to obtain a partial refund of fees, a student who withdraws entirely from the University must also return his or her identity card to the appropriate faculty registrar's office. The date of receipt of the identity card is the effective date for determination of partial refund of fees.

Students *must* withdraw from a course or courses, or from the University, on or before the appropriate last date for withdrawal as shown in the calendar for the Academic Year. (See pp. 11-13.) The withdrawal, along with the date of withdrawal, will be entered on the student's transcript as *Wdn*, which is defined as "Withdrawn in good standing. No academic credit."

It is not possible to withdraw from a course or courses, or from the University, *after* the appropriate designated last date for withdrawal, and no partial refund of fees is available unless all required procedures, as outlined above, have been completed by the student on or before the appropriate designated last date for withdrawal.

For complete details about partial refund of fees see pp. 49-50 (Fees).

For the various last dates for withdrawal for the 1982-83 Academic Year see pp. 11-13.

Notes:

1. The responsibility for taking all steps necessary for withdrawal is entirely that of the student. Ceasing to attend classes, or informing an instructor of intent to withdraw *does not* constitute withdrawal.
2. Withdrawal may affect the student's promotion status as prescribed by regulations of the various faculties and schools. Students are advised to consult their faculty registrar's office for information and guidance.
3. A student who withdraws from a course retains no academic credit for any part of that course.

Residence Requirement

In order to qualify for a bachelor's degree or a certificate or diploma from Carleton University, an undergraduate student must complete at Carleton University at least the equivalent of the final year of that degree program or at least five full course credits for any certificate or diploma.

When a faculty of the University further specifies "core", level, and detailed departmental requirements, such as Design Project or Honours Thesis, these must also be fulfilled.

University of Ottawa-Carleton Visiting Undergraduate Students

A full-time undergraduate student in Second or higher year may, with departmental permission, take the equivalent of one course credit per Winter session at the University of Ottawa without additional fee. Interested students should enquire at their faculty registrar's office. This exchange agreement is not in effect for the Summer session.

General

The Senate may at any time require a student to withdraw from the University if his or her conduct, attendance, work or progress is deemed unsatisfactory.

Evaluation

To gain standing in a course, a student must meet the course requirements for attendance, term work, and examinations.

Instructors will inform their classes in writing before the last date for course change of the elements that will contribute to the final grade and their weighting, including attendance, class participation, essays, tests, laboratories or studio-workshops, or other course-related work assignments, and final examinations. Also stated will be the availability of supplemental and grade-raising examinations, and the method of computing a grade revised by these examinations.

Supplemental and grade-raising examinations are to be available in all courses with written final examinations for those *undergraduate* students who have not been disqualified from such by receiving the grades of *FNS* or *Abs*.

Supplemental and grade-raising examinations will not normally be available in courses without written final examinations.

Supplemental and grade-raising examinations are to be available in all courses with written final examinations.

Standing in Courses

Standing in courses will be determined by departments. Standing in courses will be shown by alphabetical grades. The system of grades used, with corresponding grade points, is as follows:

A+ 12	B+ 9
A 11	B 8
A- 10	B- 7
C+ 6	D+ 3
C 5	D 2
C- 4	D- 1

The following percentage equivalents are published solely to assist other institutions in interpreting letter grades. Students are advised that these equivalents have no internal application.

A+ 90-100	B+ 77-79
A 85- 89	B 73-76
A- 80- 84	B- 70-72
C+ 67- 69	D+ 57-59
C 63- 66	D 53-56
C- 60- 62	D- 50-52

Other notations are as follows:

Aeg
Pass standing granted under special circumstances. Aegrotat standing is granted only by a faculty committee, in response to a student's application. (See Deferred Final Examinations, below.)

Aud
Indicates course is not being taken for academic credit.

F
Failure. No academic credit.

FNS
Failure without access to supplementals because of incomplete term work or unacceptably low standing. No academic credit.

Abs
Absent from final examination. No supplementals. No academic credit. *Abs* is usually equated to failure.

Wdn
Withdrawn in good standing. No academic credit.

Def
Indicates deferral of final grade has been approved by a faculty committee. (See Deferred Final Examinations, below.)

IP
In Progress

Ch
Credit granted under challenge for credit policy.

Promotion and Probation

The conditions under which undergraduate students may be promoted, and placed on or relieved of probation, are shown in the calendar entries for the faculties and schools.

Accelerated Progress

Qualifying-University-year students who perform at an above-average level may achieve a reduction in the number of courses required to graduate, under the "Accelerated Progress" policy. Detailed requirements are shown in the calendar entries for faculties.

Graduation

Undergraduate students are required to meet the graduation standards laid down by their faculty or school.

Students who wish to be considered for graduation must apply at their faculty registrar's office by the following deadlines:

Winter Graduation (February): December 1

Spring Graduation (June): February 1

Fall Graduation (November): September 1

Examinations

Students writing tests and examinations should be aware of the rules governing examination conduct, which are printed on the cover of official examination booklets.

It may be necessary to schedule mid-year and final examinations for classes held in the evening during the day and vice versa.

All tests and examinations, except laboratory examinations, are subject to the following rules:

1. Tests or examinations given in class may not exceed the time allotted for the class.
2. Final examinations in the Summer session will be held in official examination periods.
3. In Qualifying-University and 100-level courses mid-year and final examinations will be held in the official examination periods.
4. In Qualifying-University, 100-, 200-, and 300-level courses, no tests or examinations may be held during the last two weeks of classes in the First or Second term of the Winter session, between the end of classes in the Second term and the beginning of formally scheduled examinations or in the last two weeks of classes of the Summer term.
5. In courses below the 400 level, take-home examinations may not be assigned before the last day of classes and are due on the last day of the official examination period.
6. In courses at the 400 level and above, arrangements for unscheduled examinations are at the instructor's discretion but must be announced at least three weeks before the examinations.

Deferred Final Examinations

Students who are unable to write a final examination because of illness or other circumstances beyond their control, or whose performance on the examination has been impaired by such circumstances, may, on application, be granted permission to write a deferred final examination. Such applications must:

1. be made in writing to the appropriate faculty registrar's office within a week after the original final examination (students in the Faculties of Arts and Social Sciences see p. 96); and

2. be fully supported in cases of illness by a medical certificate or by appropriate documents in other cases.

Aegrotat standing will be considered for applicants for deferred finals but will be granted only if term work has been of high quality. A student granted aegrotat standing may apply to write a deferred final examination. Deferred final examinations are written at the time of the supplemental examinations for the session concerned.

Supplemental Examinations

Students may on application write supplemental examinations in courses graded *F*, under conditions defined by the Faculties.

Students are informed that the grade *FX* shown for a course on the Statement of Marks form indicates that there is no Supplemental examination privilege in that course.

Supplementals must be written at the next supplemental examination period, and if a supplemental is failed, the student must repeat the course before writing another examination in it.

Students may apply to write supplemental examinations outside of Ottawa.

Grade-Raising Examinations

Students may on application write grade-raising examinations in courses already passed, under conditions defined by the Faculties.

The grade awarded subsequent to a grade-raising examination supersedes the original final grade. A grade-raising examination in a course can be written only once, and at the next scheduled supplemental examination period.

Review of Grades

Students are entitled to review of a final grade. Those wishing to receive such a review should enquire at their faculty registrar's office, after which they may wish to make a formal application for this review. Applications must be filed with the appropriate faculty registrar's office within fourteen days of the official release of grades for the term.

Note:

The review may lower the grade.

Requests for review are dealt with by the departmental chairmen in consultation with members of the department.

The fee for each review is \$15.00, which is refundable if the grade is raised. Students awaiting the outcome of a review must still apply for any supplemental examination by the prescribed deadline.

Release of Grades

A Statement of Marks is mailed to each student as soon as the grades are available after the end of the First and Second terms of the Winter session and after the end of the Summer session. A Statement of Marks is mailed to every applicable student as soon as possible after each supplemental examination period.

Students may obtain a copy of their official transcript by completing a copy of the "Request for Academic Transcript" form which is available in their Faculty Registrar's Office. Transcripts required for professional and graduate schools should be ordered well in advance of any deadline set by these institutions.

Students are advised that no Statement of Marks or official transcripts will be released by the University until all outstanding accounts due have been paid. (See Delinquent Accounts, p. 50.)

Fees

General Information

1. This calendar is published several months in advance of the academic year. The University reserves the right to change fees and refund policies without notice.

2. Tuition fees include laboratory and survey camp fees, where applicable. In addition, *compulsory miscellaneous fees* (see below) are also assessed.

Tuition Fees

Canadian Citizens, Landed Immigrants and Foreign Students Exempt from Visa Regulations (see below)

Full-Time (four or more full-credit courses)

Qualifying University Year	\$1,363.00
Arts, Commerce, Public Administration, Journalism, Music, Science, Computer Science and Special Engineering, Architecture and Industrial Design	\$1,049.00
	\$1,139.00

Part-Time (per full-credit course, see note a)	\$ 205.00
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Visa Students

1. Visa students who have successfully completed one or more terms of a program at an Ontario university prior to September 1, 1982:

Full-Time (four or more full-credit courses)

All programs	\$2,189.00
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Part-Time (per full-credit course, see note a)	\$ 436.00
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2. Visa students who have *not* successfully completed one or more terms of a program at an Ontario university prior to September 1, 1982:

(a) Qualifying University Year, Full-Time	\$3,861.00
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(b) Type A Programs: Arts, Commerce, Public Administration, Journalism, Science, Computer Science and Specials:

Full-Time (four or more full-credit courses)	\$2,970.00
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Part-Time (per full-credit course, see note a)	\$ 592.00
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(c) Type B Programs: Engineering, Architecture, Industrial Design, Music and Specials:

Full-Time (four or more full-credit courses)	\$4,840.00
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Part-Time (per full-credit course, see note a)	\$ 968.00
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Miscellaneous Fees: All Full-Time Students

Students' Association (see note b)	\$ 40.50
Athletics	\$ 59.60
Health Services	\$ 17.50
University Centre	\$ 20.00
Total	\$ 137.60

Miscellaneous Fees: Part-Time Students (per full-course credit)

Students' Association (see note b)	\$ 8.10
Athletics	\$ 11.90
Health Services	\$ 3.00
University Centre	\$ 4.00
Total	\$ 27.00

Notes

(a) The half-credit course fees will be assessed at one half the full-credit course amounts.

(b) The Carleton University Students' Association fee includes a fee of \$7.00 for the new Confederation of Students, or \$1.40 per full-credit course for part-time students and a fee of \$3.50 for the new Carleton Public Interest Research Group, or \$0.70 per full-credit course for part-time students.

(c) Students transferring from a First-term half-credit course to a Second-term half-credit course will be given credit for the unexpired portion of the First-term half-credit course and charged full fee for the Second-term half-credit course.

Exemptions for Foreign Students

Subject to approval by the Admissions Office, the following categories of foreign students are exempt from the foreign students' fee indicated above and will instead be assessed the regular tuition fee:

1. Persons, or dependents of persons, admitted to Canada under diplomatic visas. (Immigration Act, Section 7(1) (A));

2. Dependents, excluding the spouse, of a person admitted to Canada on a special visa to practise his or her special profession for a specified period of time. (Immigration Act, Section 7(1) (H));

3. Persons sponsored and financially assisted by agencies such as the Canadian International Development Agency, International Development Research Centre, etc.;

4. Persons studying under a reciprocal exchange agreement recognized by the Ministry of Colleges and Universities.

Persons who believe that they qualify for exemption under one of the foregoing categories must submit documentation, at the time of registration, to support their claim. University personnel will be available at that time to answer any queries.

Tuition Fees: Senior Citizens

All persons sixty years of age and over as of the last day for late registration may register in degree-credit courses and have their tuition fees waived. The only charge to these students is a \$5.00 per session registration fee.

Late Registration Fees

Full-time students

\$10.00 first week after the registration period

\$15.00 second week after the registration period

Part-time students

\$5.00 (per full course) after the registration period

Late Registration fees are nonrefundable

Method of Fee Payments

Fees may be paid in accordance with either of the following plans.

1. Payment in full at the time of registration.

2. Payment in two installments:

(a) At registration, $\frac{1}{2}$ of the total tuition fee plus all miscellaneous fees plus a nonrefundable deferred payment charge of \$2.00 per half-course credit (\$20.00 for four or more course credits);

(b) at or before January 15, the remaining half of the total tuition fee.

Scholarships, bursaries, and loans administered by the University shall be applied first to fees, provided this is not contrary to the terms of the award.

Personal cheques will be accepted for payment of accounts but the University reserves the right to cancel the use of this method by any student if it is abused. A service charge of \$5.00 will be made for each cheque returned to the University as non-negotiable for any reason. Students are requested to have their own cheque forms available when making payments.

Miscellaneous Charges

1. Transcripts

Each student will be eligible for one free transcript at graduation. All other transcript requests will be processed after payment is made in advance at the Business Office at the rate of \$2.00 per transcript.

2. Letters of Permission

A charge of \$10.00 per course, (regardless of credit value) to a maximum of \$50.00 per academic session, will be assessed on each request for a Letter of Permission. This charge is payable in advance at the Business Office.

3. Examination Charges

(a) *Written at Carleton:* A charge of \$15.00 per paper applies for supplemental and grade-raising examinations, and for requests for grade reviews. There is no charge for deferred final examinations.

(b) *Written Off-Campus:* In addition to the charge in (a) above a charge of \$15.00 applies for each paper written at a location other than at Carleton.

(c) Examination charges are non-refundable. The grade review charge will be refunded if the grade is raised.

4. Certificates for Income Tax Purposes

Tuition Certificates and Certificates of Attendance for income tax purposes will be available from the Business Office by the end of February to all students who have paid their accounts in full. Students will be charged \$2.00 in advance for each duplicate tax certificate requested.

Overdue Accounts

Fees are due and payable at the time of registration. However, students may be permitted to select a payment program, in which case the last payment due-date is January 15. Should a student fail to complete the payments as arranged at registration, or fail to make satisfactory arrangements for the discharge of fees or other outstanding amounts by the last payment due-date, the University reserves the right to cancel the student's registration. All charges and outstanding fees accrued to the date of cancellation will remain due and payable on the student's account.

Withdrawal and Refund

See also p. 44.

The composite fee for full-time students is a charge for four full courses or more. No charge is made for the fifth or any additional courses; conversely, no refund will arise as a result of withdrawal from a course by a full-time student unless the change alters his or her status from full-time to part-time.

Students who withdraw from a course, or from the University, are required to notify their faculty registrar in writing, or fill out the appropriate forms available from the faculty registrar's office. Students who withdraw from the University must return their identity cards to the appropriate faculty registrar's office

immediately. Refunds will be calculated by the date of receipt of the card.

A refund of the composite fee less a registration charge calculated at the rate of \$5.00 per half course for part-time students and \$50.00 for full-time students may be made for withdrawals before the last date for late registration in the First term. After the last date for late registration, the tuition portion of the composite fee, less the registration charge, is amortized over the period from the first day of classes to the last date for withdrawal with partial refund.

A detailed schedule of refund credits is available at the Business Office. As an example, the following is an illustration of how this schedule applies to a student registered in the Winter session in Arts. (1981-82 fees are used in this example.)

	Full-Time (4 or more credits)	Part-Time (per full-credit course)
Original Assessment	\$1,073.60	\$209.00
Less: Registration Charge	\$ 50.00	\$ 10.00
Credit up to last day for Late Registration (September 24, 1982)	\$1,023.60	\$199.00
Less: Miscellaneous Fees (after September 24, 1982)	\$ 137.60	\$ 27.00
Amount to be pro-rated over period September 13, 1982 — February 18, 1983 (last day for withdrawal from winter session full-credit courses)	\$ 886.00	\$172.00

The amount to be pro-rated is spread over the period from the first day of classes to the last day for withdrawal with partial refund. In the case of the foregoing example any student who withdraws after the last day for late registration will receive a refund of \$886.00 (\$155.00 part-time, per full-credit course) less approximately \$9.00 per day (\$2.00 per day part-time, per full-credit course) for each day of classes as determined by the effective date appearing on the withdrawal/change form.

Note that miscellaneous fees are not refundable after the last day for late registration. Late registration or deferred payment fees are not refundable.

The appropriate refund credit will be applied to the student's account and any amounts due at that time will be offset before a cash refund is prepared.

Following are the last dates for withdrawal with partial refund of fees; no application for withdrawal and refund will be considered if received after these dates:

1982-83 Winter Session

November 19, 1982 First-term half course

February 18, 1983 Full course

March 19, 1983 Second-term full and half courses

1983 Summer Session

June 14 Evening division First-term half course

July 15 Day division First-term half course

July 22 Evening division full course

July 29 Day division full course and Evening division
Second-term half course

August 3 Day division Second-term half course

Locker Rentals

A rental of \$5.00 is charged for the use of locker space during the academic year. Lockers are allocated on a first-come first-served basis and may be shared. Locks will be removed from lockers occupied by unauthorized persons and the contents turned over to Security Services. A refund of locker fees will be made only up to the last date for late registration.

Lockers must be vacated by May 1 for the Winter session and by August 20 for the Summer session, after which they will be cleared and the contents treated as abandoned and disposed of by the University without further notice.

Delinquent Accounts

Registration shall not be complete until a satisfactory arrangement has been made for the payment of fees, and may be cancelled should the student fail to meet these arrangements.

If students owe the University any money at the end of an academic session their accounts become delinquent.

Students with delinquent accounts will not receive examination results, are not permitted to receive transcripts, may not graduate and will not be permitted to register again until all monies owing have been paid in full by cash or certified cheque.

Parking

Permission to park on the campus is granted for a fee to students and others associated with the University but this permission is conditional upon co-operation in the observance of the regulations. Penalties will be imposed for infractions, and under certain circumstances, cars will be towed away at the owner's risk and expense. Security personnel are authorized to issue City of Ottawa traffic tickets on campus. Any vehicle not displaying a valid Carleton Permit is subject to this type of ticket.

In this, as in other respects, examination grades will be withheld from students owing sums of money to the University. Unless cause can be shown, the third infraction may lead to withdrawal of parking privileges. The University accepts no responsibility for cars or their contents parked or operated on the campus. The regulations related thereto are available in the Traffic and Parking Office. Students and staff who bring cars to the campus are expected to make themselves familiar with these regulations. Parking lots are indicated on the map at the back of the calendar, pp. 494-495.

University Library

The University Library is located on the south-west side of the main quadrangle. The collection consists of over one million books and periodicals and more than 400,000 microfilms, microfiches, cassettes, and discs. The majority of these items are on open shelves. The Map Library, with 97,000 maps and atlases, is housed in the Loeb Building, Room D299.

The library's main (or second) floor contains the Reference and Information, Circulation, Interlibrary Loans, and Audio-Video services. The first floor houses books and periodicals in science and technology and the Micro area, while floors 3, 4 and 5 contain the remainder of the collection, with Documents in a separate area on the 5th floor. Seating is available on all floors.

The library is governed by regulations approved by Senate, copies of which are available at the Information Desk.

The library collection is protected against theft by an electronic book detection system. As a condition of use of the library all users must submit books, brief cases, bags, etc. for inspection at the exit, if requested to do so. Late return fees are charged for overdue books, and, as noted under "Delinquent Accounts", examination grades and transcripts will be withheld from students owing money to the university.

Geoffrey H. Briggs, *M.A. (Cambridge) Dip.Lib., Dip. Arch. (London)*, University Librarian

Neil Brearley, *B.Sc. (London) B.L.S. (British Columbia)*, Information Services

E. Martin Foss, *B.A. (Alberta) B.L.S. (British Columbia)*, Technical Services

Verna Z. Wilmeth, *B.A. (San Jose) M.A.L.S. (Michigan)*, Administrative Services

Milly Armour, *B.Sc. (Glasgow) B.L.S. (Ottawa)*, Reader Services

Gail Catley, *B.Sc., M.L.S. (McGill)*, Acquisitions

Terry Clark, *B.A. (Winnipeg) M.A. (Manitoba) M.L.S. (Western Ontario)*, Interlibrary Loans

Bozena Clarke, *B.A. (Carleton) M.L.S. (Toronto)*, Serials

Barbara Farrell, *B.A. (London) M.A. (Carleton)*, Maps

Susan Jackson, *B.A. (Carleton), B.L.S. (McGill)*, Documents

Jeremy Palin, *B.A., B.L.S. (British Columbia)*, Special Collections

Naomi Roberts, *B.A. (Oxford) M.S.L.S. (Catholic University of America)*, Gifts

Dorothy Rogers, *B.A. (Wellesley) M.A. (Yale) B.L.S. (Toronto)*, Cataloguing

Elsbeth Ross, *B.A. (Queen's) M.L.S. (Toronto)*, Collections

Ene Tikovt, *B.A., M.L.S. (McGill)*, Systems

Audrey Turner, *B.A. (Carleton)*, Special Services

Health Regulations

Medical insurance is compulsory for all full-time students. It is the student's responsibility to provide the insurance number when receiving medical care.

All Ontario students should be covered by OHIP.

Students whose home residence is outside Ontario should have coverage under their provincial plan.

Students from outside Canada should apply for OHIP. This application should be made as early as possible because there is a delay in coverage after application.

Tuberculosis Control

On admission to the university, every student requires a tuberculin skin test, or chest X-ray if tuberculin positive. Tuberculin skin tests are administered in the Health Services, sixth floor University Centre, or at Provincial Chest Clinics.

Students who object to the foregoing requirements on conscientious grounds must consult the university physician, and provide a written statement giving the basis for such objection.

Fees

The student health fee is used to pay for special medical supplies, the after hours health services and educational program expenses. In addition, the fees cover that portion of costs for salaries and supplies related to the administration of Health Services. The service is an ancillary, self-financed department.

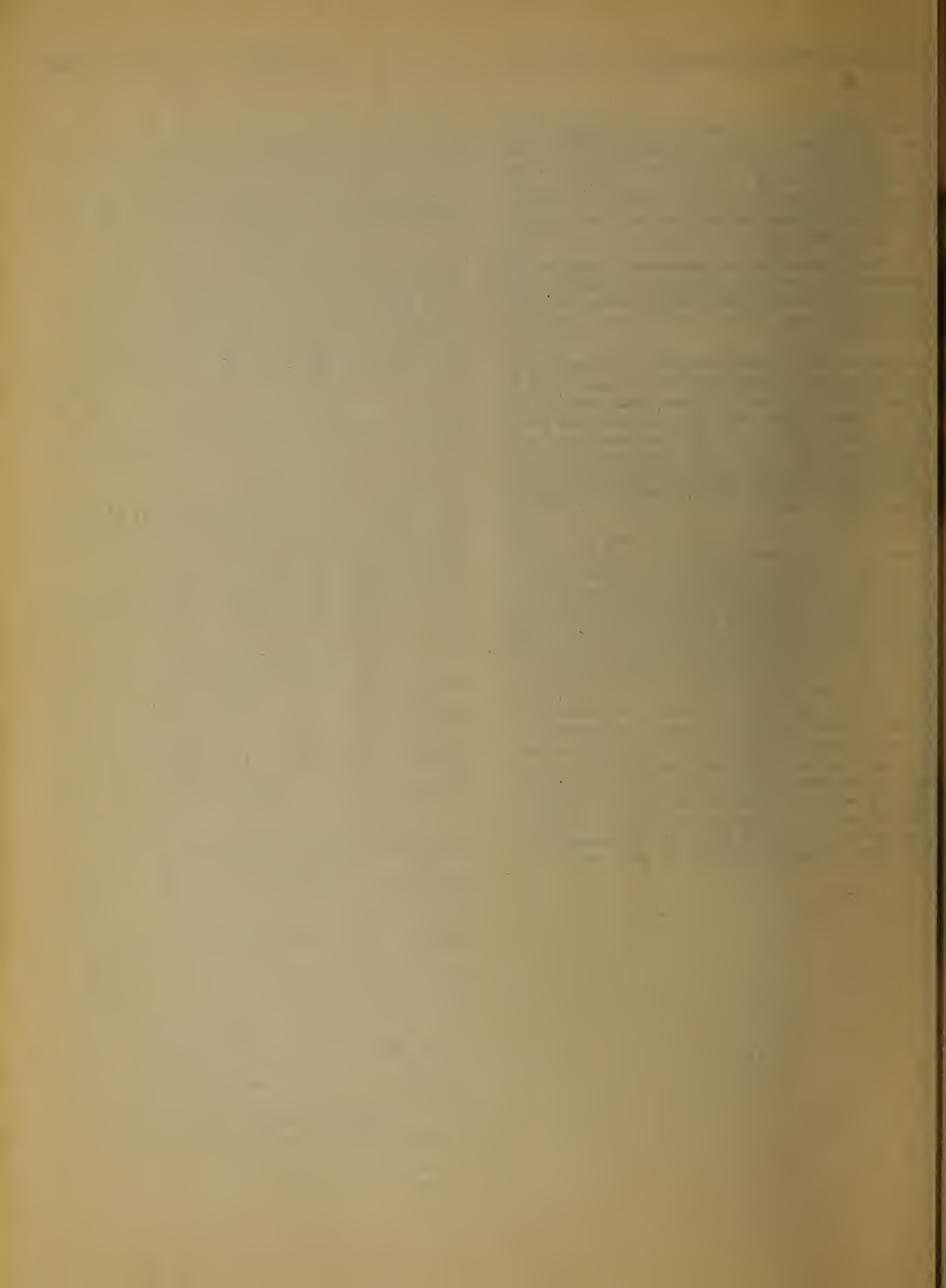
The academic dress of Carleton University is a compromise between the style of hoods outlined in the American Intercollegiate Code and the dress of the ancient foundations of Britain and America. The Bachelor's or Master's hood is of simple or Oxford shape, made of black stuff and lined with two chevrons of red and black on a silver field.

The Master's hood, made of black silk, is again of the simple shape but open to show more of the lining. The Doctor of Philosophy hood is again made of silk, but completely opened to show the lining and provided with a purple border.

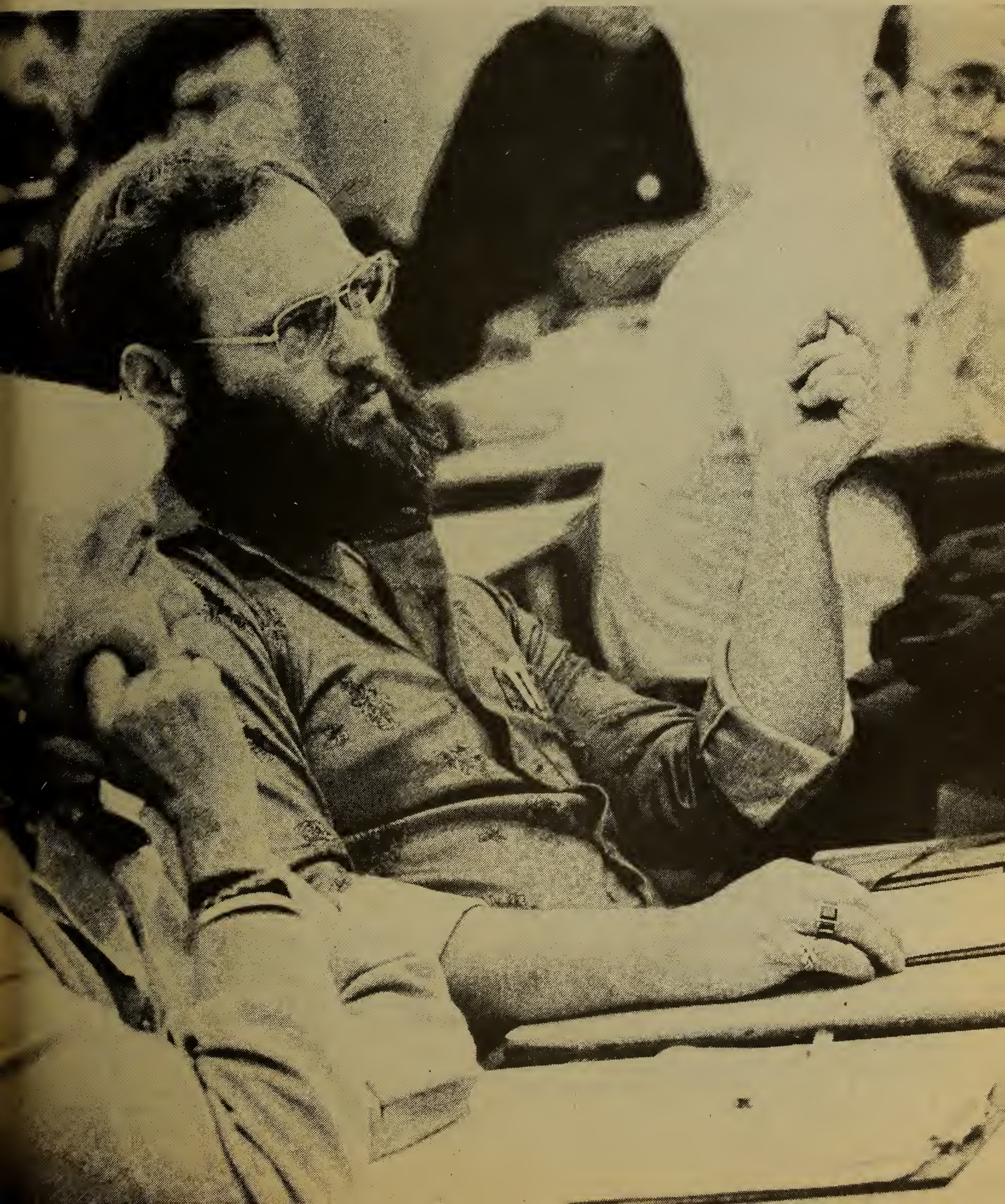
The border of the Bachelor's or Master's hood denotes the degree granted, according to the following colour combinations: *Architecture*, cerise; *Arts*, white; *Commerce*, camel brown; *Computer Science*, royal blue; *Engineering*, orange; *Industrial Design*, dark cardinal; *Journalism*, white with a black cord sewn slightly in from the lower border; *Music*, Venetian pink; *Public Administration*, peacock blue; *Science*, golden yellow; *Social Work*, cream.

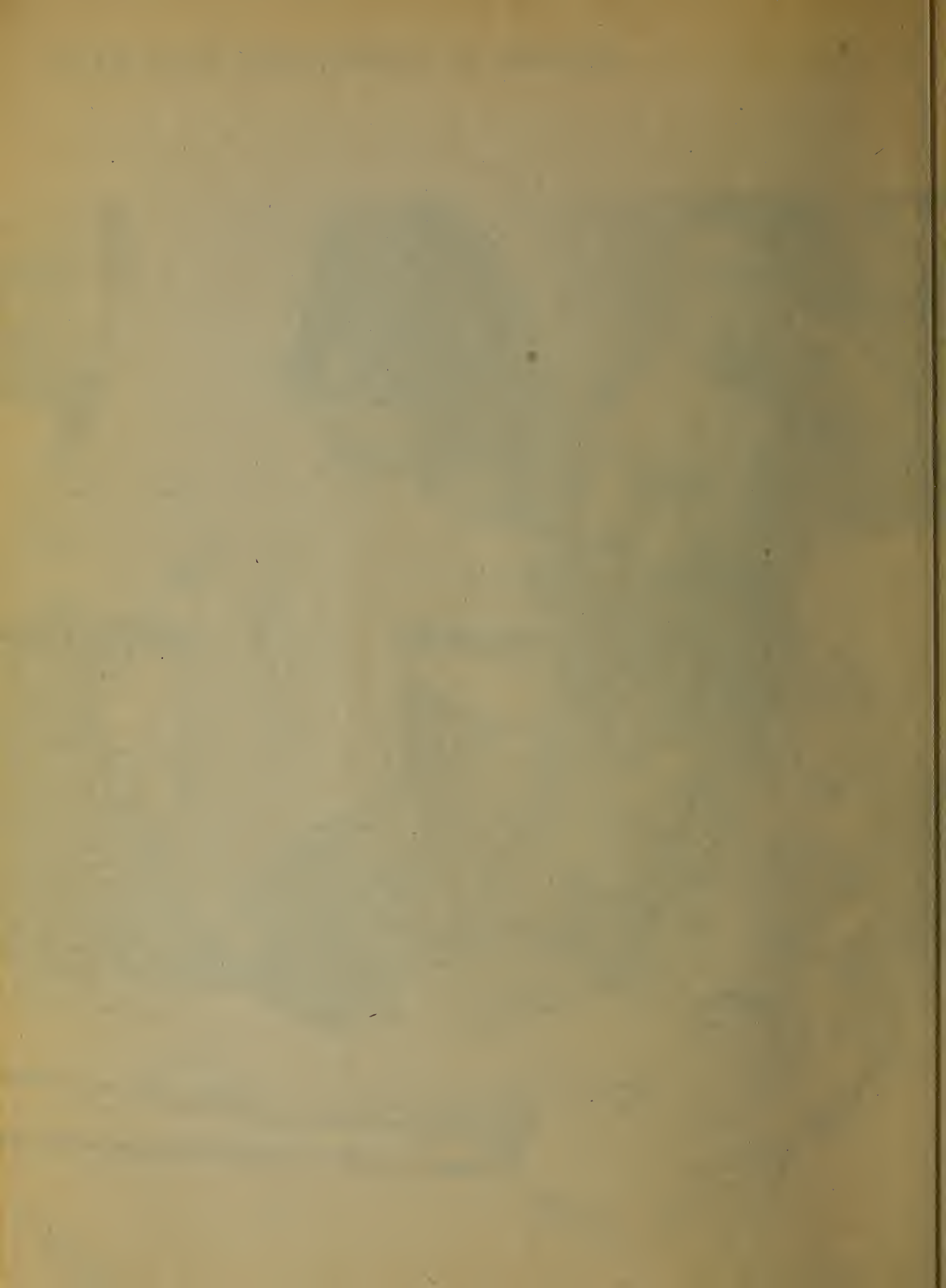
The Bachelor's gown, to be worn with the above hoods, is of full length, made of black stuff, with a gathered yoke behind, and long open-fronted sleeves. The Master's gown is of full style, made of black silk or rayon, with full gathered yoke behind, and closed sleeves with an opening at the elbows. The Doctoral gown is the same style as the Master's, made of fine royal blue cloth with facings of a light blue silk.

The gown of the Honorary Doctor of Laws, Literature, Science and Engineering is a blue robe with bell-shaped sleeves, made of fine royal blue cloth with facings and sleeves in light blue silk. The hood is made of the same material as the gown, has the same lining as that for the degrees granted by examination, and is bordered with dark mauve for the degree of Doctor of Laws, vibrant blue for the degree of Doctor of Literature, red for the degree of Doctor of Science and orange for the degree of Doctor of Engineering.



School of Continuing Education





School of Continuing Education

Faith B. Gildenhuis, *Director*
Keith C. Alnwick, *Registrar*
Regina Aulinskas, *Extension Co-ordinator*
Margaret Mamen, *Academic Programs*
Lana Seabrooke, *School Administrator*

The School of Continuing Education, in conjunction with other departments at Carleton, co-ordinates and develops both existing and new activities in adult, part-time and non-traditional education.

The office of the Director and registrarial services for both Special students and Extension (non-credit) students, are situated in Room 302, Administration Building (231-6660).

Student Classifications

As outlined on p. 15, there are several distinct student classifications at Carleton. The three most basic are discussed in detail below. Students are classified on the basis of whether they have been formally admitted to a degree program, *not* on the basis of whether they are studying part time or full time.

Degree students are those who have been admitted to, and are enrolled in, a degree program, whether graduate or undergraduate, on either a full-time or part-time basis.

Special students are those who have not been admitted to a degree program but who are taking degree-credit courses to qualify for admission, to improve professional or vocational qualifications, for transfer credit or for personal interest. Any interested person is eligible to enrol as a part-time Special student.

Extension students are those enrolled for non-credit courses and/or workshops offered through the Extension Division. Detailed information regarding all non-credit programming offered through the Extension Division can be obtained by telephoning Continuing Education at 231-6660.

Information for Part-Time Students

Information of particular interest to part-time students is contained in various sections of this calendar. The Carleton Glossary (p. 10), the Academic Year (p. 11), General Information (p. 14), the Course Designation System (p. 16), the University Office Guide (p. 18), Student Services (p. 21), and General Regulations (p. 29) are all sections of primary interest.

Current or prospective part-time Arts or Social Science degree students are encouraged to consult Faculty regulations outlined on pp. 89-99.

Current or prospective part-time Science degree students should familiarize themselves with Faculty of Science regulations found on pp. 363-371.

Current or prospective Computer Science degree students are encouraged to consult the entry for the School, pp. 65-77.

Further information may be obtained from appropriate faculty registrar's offices. (See University Office Guide p. 18 for telephone numbers and locations.)

Special Students

As indicated above, Special students are those registering in degree-credit courses without having been formally admitted to a University degree program.

Special students enrol in the same courses as students in degree programs and may take classes in both Day and Evening divisions.

All registrarial services for Special students are provided through Continuing Education, Room 302 Administration Building, 231-6660.

Admission Status

Courses completed by a Special student will not be credited towards a degree program until formal application for admission is made and the student is officially admitted to the University as an undergraduate (either part time or full time).

Special students may be admitted to degree study upon indicating, through academic achievement at Carleton, a reasonable probability of future academic success. However, previous post-secondary studies will be taken into consideration at the time an application for admission is evaluated. Students with previous, unsuccessful post-secondary studies are encouraged to contact the Office of Admissions before attempting to qualify for admission on the basis of Special student studies.

Normally, in the Faculty of Arts or the Faculty of Social Sciences, a Special student will be admitted after passing at least four full courses with a C- standing or higher in at least two full courses or equivalent.

Normally, in the Faculty of Science, a Special student will be admitted after passing at least four *approved* full courses with a C- standing or higher in at least two full courses or equivalent.

A Special student seeking admission who has completed *more* than four courses: **(a)** must meet the requirements within the previous six full courses preceding formal application for admission; and **(b)** may not present more than two supplemental or special supplemental examinations in meeting the requirements for admission.

The number of courses required for admission to a degree program may be reduced if the Special student is able to present a sufficiently higher grade average. Thus, a student who obtains a B- grade average or better in three successive credits or A- grade average in two successive credits is encouraged to make formal application for admission.

For a person with some university experience (or the equivalent), the number of courses required for admission to degree study may differ from that indicated above. Advice in this regard may be obtained from the Admissions Office upon formal application.

A student admitted to an undergraduate degree program will normally receive retroactive credit standing in courses successfully completed at Carleton as a Special student.

Special students intending to pursue a degree program in the Faculty of Science, should note that, upon admission, credit may be granted for not more than seven full courses, four of which must meet the First year promotion requirements.

Admission as a Mature Matriculant

Persons who lack the normal entrance requirements as published in this calendar may receive consideration for admission under the mature matriculation policy. Applicants will normally have been away from full-time studies for a minimum of two years and must be twenty-one years of age, or over, by December 31 of the year in which they wish to enrol.

Any person who meets the age requirement is eligible to be considered for admission as a mature matriculant to either part-time or full-time studies. This category is, however, designed for individuals who do not meet normal admission requirements but who would probably be successful in university studies.

Persons who satisfy the foregoing requirements will normally be admitted to a degree program if:

- (a) they have secondary school graduation in an academic program with a 60% average; or
- (b) they have completed, at Carleton, one appropriate full course credit with a C- or higher standing, in one attempt; or
- (c) they have other academic or work experience which, in the opinion of the admission committee, indicates a likelihood of success at university.

Only Canadian citizens and permanent residents are considered for admission as mature matriculants. Persons who have previously been involved in a university- or college-level program as full-time students are not normally eligible for consideration as mature matriculants, regardless of age. These individuals are assessed for admission on the basis of their most recent academic experience.

Mature matriculants are normally considered for admission to the First year of an undergraduate program in arts, science or engineering. Students seeking admission to the Faculty of Science who do not hold

the necessary prerequisites may be required to take Qualifying University year courses in addition to the regular program. Students in a similar situation in relation to the Faculty of Engineering will not normally be considered until such time as the necessary prerequisites have been completed.

Mature matriculants are not usually considered for entry into Honours programs (i.e. commerce, journalism) or into architecture or industrial design. If, however, at the end of their First year they meet the requirements for an Honours program, they may apply to transfer to the program of their choice.

Applicants are required to submit proof of age and biographical information with their application for admission.

Special students at Carleton University who meet the age requirement will normally be considered for admission as mature matriculants if:

- (a) they have obtained a grade of C- or better in at least one full course (or equivalent); and
- (b) are eligible to continue as Special students.

Individuals contemplating mature matriculation are invited to seek advice at one of the following offices:

The Office of Admissions
School of Continuing Education

Eligibility to Register

Returning Special students must pass four of their previous six full credits (or equivalent) with a C- standing or higher in at least two full credits (or equivalent) to be eligible to receive permission for further registration.

Without documentation to the contrary, a grade of *Abs* (Absent) is judged equivalent to a grade of *FNS* (Failure, no supplemental privileges) for the purpose of determining eligibility to continue as a Special student.

Special Requirements for Overseas Students

Since the instructional language of the University is English, students must be able to understand and be understood in English, both written and oral. Students whose mother tongue is a language other than English must clearly exhibit this ability by the results of the Test of English as a Foreign Language (TOEFL) given by the College Entrance Examination Board or the Test of English Language Proficiency administered by the English Language Program sector of the Linguistics Department. For further information contact Continuing Education at 231-6660.

Course Load

Special students may normally enrol in a maximum of two full credits per academic session and no more than the equivalent of two half credits in any one term.

Special students who have completed one or more full credits with an overall C average in all courses taken at Carleton (including failures) may register in the equivalent of three half credits in each term of the Winter session. Special students studying in the Summer session may register for a maximum of two full credits (or equivalent).

Special students may enrol in four or five full credits provided any of the following conditions prevail:

1. the student is enrolled full time in a degree program at another institution and can present a Letter of Permission authorized by an appropriate official of the institution; or
2. the student holds an undergraduate degree from a recognized institution and wishes to pursue further study for professional development or in preparation for entry into graduate study; or
3. the student, on the recommendation of a department, has to upgrade undergraduate deficiencies prior to consideration for admission to a Carleton graduate program. Such students also require the permission of the Faculty of Graduate Studies and Research and are advised to consult the Graduate Studies and Research Calendar.

Course Change and Course Withdrawal

Special students wishing to make a change in their registration must use the appropriate form provided by Continuing Education.

Course changes must be made by the deadline dates designated in the Academic Year (see pp. 11-13). Changes include withdrawal, section changes, as well as changes of status from credit to audit or vice versa.

Students who are withdrawing from a course or courses, or from the University entirely, must notify the Continuing Education office, either on the specific form designated for that purpose and available from that office, or by letter.

The official date of withdrawals is the date on which the notification is received in the Continuing Education office. Partial refund of fees for students withdrawing from a course or courses, but not entirely from the University, will also be calculated as of that date. In order to obtain a partial refund of fees, students withdrawing entirely from the University must also return their identity card to the Continuing Education office. The date of receipt of the identity card is the effective date for determination of partial refund of fees.

Students *must* withdraw from a course or courses or from the University on or before the appropriate last date for withdrawal as shown in the calendar for the Academic Year (see pp. 11-13). The withdrawal, along with the date of withdrawal, will be entered on the student's transcript as *Wdn*, which is defined as "Withdrawn in good standing. No academic credit." No academic penalty is attached to this grade.

It is not possible to withdraw from a course or courses, or from the University *after* the appropriate designated last date for withdrawal, and no partial refund of fees is available unless all required procedures, as outlined above, have been completed by the student on or before the appropriate designated last date for withdrawal.

For complete details about partial refund of fees see pp. 49-50 (Fees).

Notes:

1. The responsibility for taking all steps necessary for withdrawal rests entirely with the student. Ceasing to attend classes, or informing an instructor of intent to withdraw does *not* constitute withdrawal.
2. A student who withdraws from a course retains no academic credit for any part of that course.

Course Selection

Persons wishing eventually to be admitted to a degree program are advised to note the specific faculty requirements for First-year students as listed in this calendar. Special students who have not completed Senior Matriculation or equivalent standing may have to upgrade their qualifications by enrolling in courses at the Qualifying University year level.

Special students are strongly encouraged to consult directly with departments when selecting specific courses of study.

Supplemental and Special Examination Privileges

Supplemental examinations written by Special students will be graded according to the supplemental regulations of the faculty in which the course is given. Supplemental examinations are made available at the discretion of the department or school involved. A Special student registered in one, two or three credits, who fails only one credit, may write supplemental examinations to a maximum of one full credit. Supplemental privileges will not be granted to students who fail more than one credit.

A Special student registered in four credits may write supplemental and grade-raising examinations to a maximum of one credit each, or two credits of grade-raising examinations.

A Special student registered in five or more credits may write supplemental and/or grade-raising examinations to a maximum of two credits.

Supplemental privileges will not be granted to a full-time Special student who does not pass at least three credits during the Fall/Winter session.

A Special student who wishes eventually to enrol in a degree program of a faculty at Carleton University is strongly encouraged to pay particular attention to the supplemental examination regulations for that faculty.

Special students are eligible to write deferred final examinations under the conditions indicated on p. 46.

Special students must make application for supplemental and special examinations at the Continuing Education office by the published deadlines.

Appeals

A Special student has the right to appeal any decision relating to the application or interpretation of academic regulations made by Continuing Education.

Appeals must be made in writing and should be submitted to the Secretary, Special Student Policy and Appeals Committee, c/o School of Continuing Education, Room 302 Administration Building, Carleton University.

Financial Assistance

Special students interested in obtaining financial assistance are advised to contact the Student Awards Office at 231-3735.

Ontario residents should apply for financial aid from the Ontario Student Assistance Program (OSAP). The program is made up of four individual plans: Ontario Study Grant Plan, Canada Student Loans Plan, Ontario Student Loans Plan and Ontario Special Bursary Plan.

Ontario Study Grant Plan (OSG)

This plan can provide grants to assist post-secondary study for up to eight terms. In this way, the grant plan will cover many students for their first four years of full- or part-time post-secondary study. Eligible students can receive this grant without having to borrow money first.

Canada Student Loans Plan (CSL)

For qualified applicants, this plan provides an interest-free loan for post-secondary study. To be eligible applicants must be following at least sixty percent of a full course load. The amount of loan will be based on calculated financial need.

Ontario Student Loans Plan (OSL)

For full-time students whose calculated financial needs are not fully covered by the Canada Student Loans Plan, applications for OSAP assistance may be supplemented automatically by the Ontario Student Loans Plan. This provincial loans plan also helps part-time students, or students enrolled in some short courses which are not covered by the other plans. Students are not obliged to borrow the full amount of the authorized loan.

Ontario Special Bursary Plan (OSBP)

The province of Ontario provides non-repayable bursaries to help Ontario students who are on social assistance, are unemployed or have a low family income, and who are taking up to three courses. Students may not, at the same time, receive financial assistance from OSG, CSL or OSL. If eligible for OSBP, the student may receive a bursary to cover tuition and other compulsory fees, book and equipment

and local transportation expenses, in addition to a possible supplementary grant towards any additional costs such as babysitting.

Part-Time Scholarships

Carleton offers a number of scholarships tenable at the University, to students formally enrolled in Carleton degree programs, who have completed the equivalent of at least five courses through part-time studies at the University and who have demonstrated a high potential for university studies. This is one reason why it is particularly desirable for Special students to gain early admission to a degree program. To be eligible the candidate must have maintained a high academic standing and be registered as a part-time student. *Value:* Academic tuition fee for one or more courses (non-transferable).

Transfer Credits to Another University

Students who wish to attend Carleton to receive credits toward a degree program taken elsewhere are eligible to register at Carleton as Special students. Such students who wish to exceed the normal course load or attend full-time should write or consult directly with the Registrar of Continuing Education well in advance of the session for which they plan to register.

Academic Information Service

The School of Continuing Education is equipped to offer information and advice to Special students who are currently registered and to prospective Special students. Appointments may be arranged by telephoning 231-6660. Evening appointments are available.

Summary of Undergraduate Certificate and Diploma Programs

General Information

In addition to the ten programs leading to bachelor's degrees, Carleton University also offers six undergraduate certificate/diploma programs, each normally requiring satisfactory completion of five or six full-course credits or equivalent. These programs are summarized below and full details can be found on the appropriate pages, as noted.

English Language and Composition (Certificate)

The Certificate in English Language and Composition program consists of five full-course credits or equivalent. It is intended primarily for practising teachers, and its aim is to upgrade the student's knowledge of the areas of English language and writing theory that underlie the new Ontario guidelines and support documents. Admission requirements are a university degree or a teaching certificate. For details see p. 143.

French Language Studies (Certificate)

The Certificate in French Language Studies program consists of six full-course credits or equivalent. It is designed for students who wish to perfect their spoken and written French. The normal admission requirement is Senior Matriculation with a 60% overall average, or mature matriculation and, in addition, facility in French to the level of French 20.102 (see p. 159), with candidates required to pass a placement test given by the Department of French. For details see p. 158.

Law Enforcement Studies (Certificate)

The Certificate in Law Enforcement Studies program consists of six full-course credits or equivalent. It is designed primarily for persons employed in the areas of law enforcement, national security or corrections. Admission requirements are Senior Matriculation (Ontario Grade 13) with 60% overall average, or Mature Matriculation, or Junior Matriculation (Ontario Grade 12) with three years' service in a police force or equivalent agency. For details see p. 212

Music (Diploma)

The Diploma in Music program consists of five full-course credits or equivalent and a graduating recital (which includes a *viva voce* examination). It is intended for persons with a strong background in performance on a musical instrument or in voice, who are

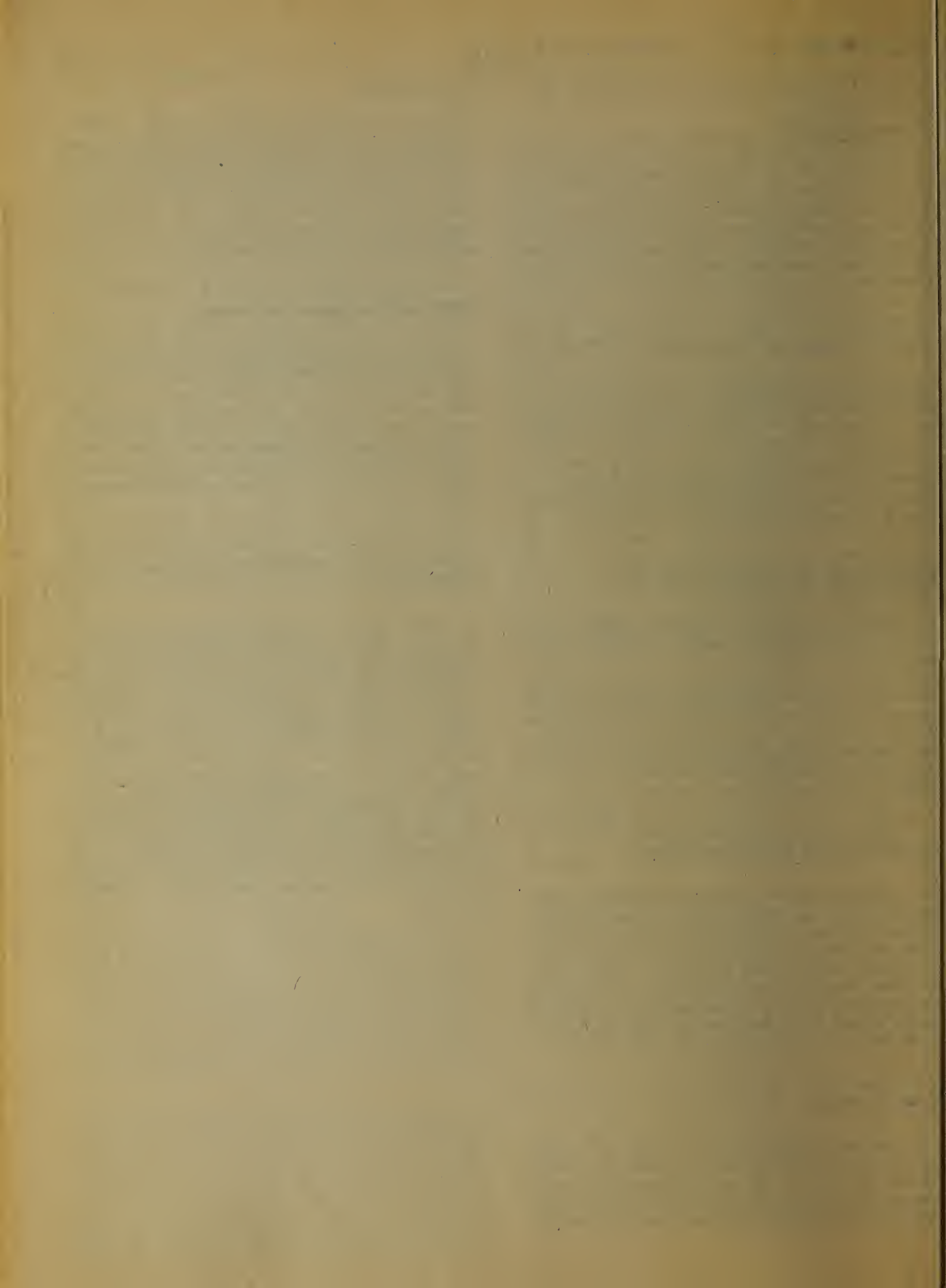
involved in the teaching of music and wish to obtain additional academic qualifications. Normal admission requirements are Senior Matriculation (Ontario Grade 13) and an adequate level of performance with special consideration being extended to other applicants under mature matriculation regulations. Admission is based on an audition held by the Department of Music each Spring. For details see p. 223.

Public Service Studies (Certificate)

The Certificate in Public Service Studies program consists of six full-course credits or equivalent. It is intended primarily for public employees who wish to have special training in public service subjects. The normal admission requirement is Junior Matriculation (Ontario Grade 12). Please note that persons who have completed an undergraduate degree are not considered for admission to this program. For details see p. 257.

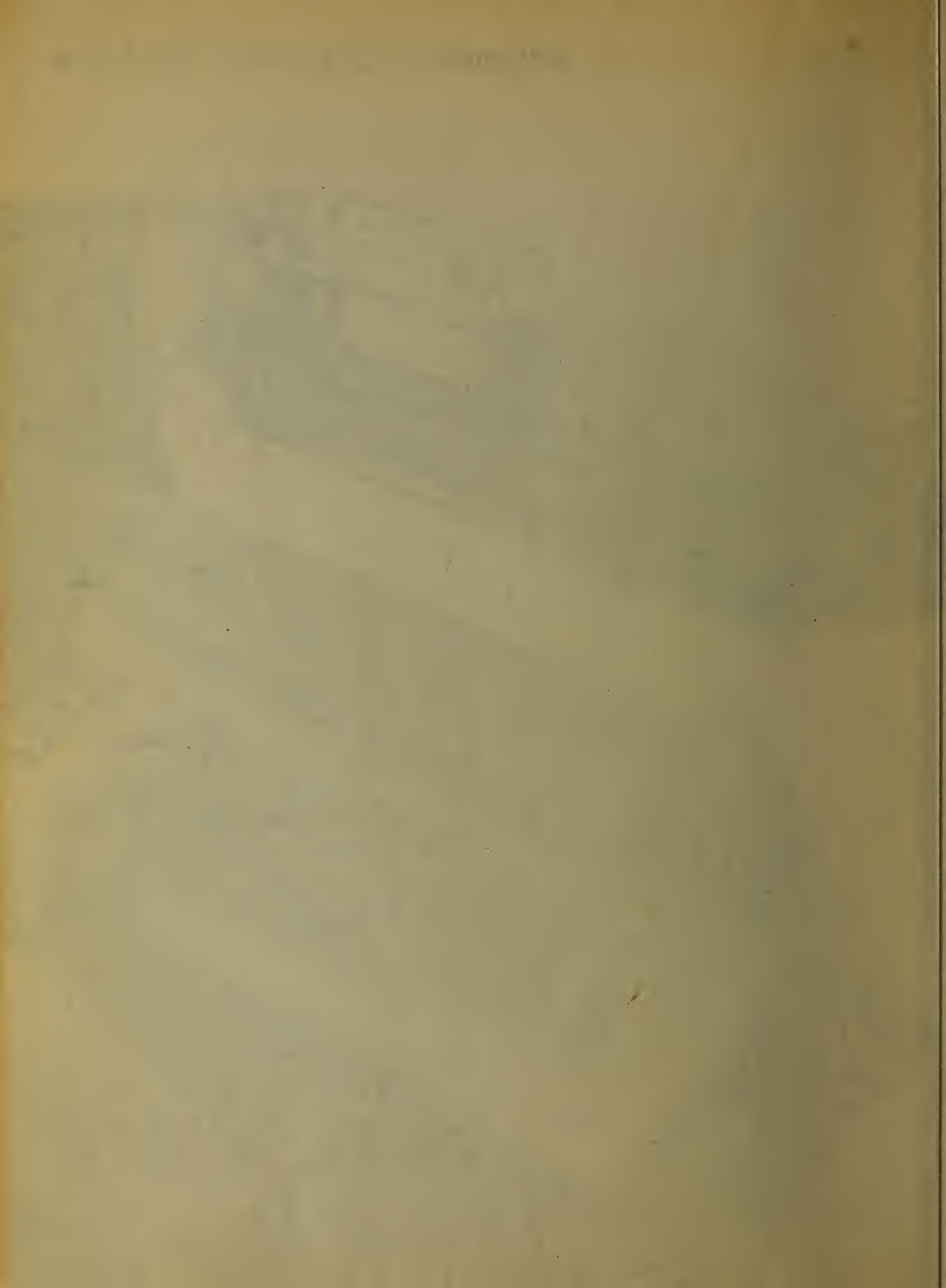
Teaching of English as a Second Language (Certificate)

The Certificate in the Teaching of English as a Second Language (CTESL) program consists of five full-course credits or equivalent, in the theory and practice of teaching English as a second language. It is offered by the Department of Linguistics. Normal admission requirements are completion of a first degree in another discipline or a course of training in a teacher-training college. (Other applicants with a strong academic background or with experience in the teaching of English as a second language may also be considered for admission.) All applicants are admitted on the recommendation of the Department of Linguistics and, in addition to the foregoing qualifications, must be fluent in English, with proficiency determined by an oral or written test given by the department. For details see p. 213.



School of Computer Science





Officers of the School

Director

J.E. Neilson

Professor

F. Fiala (*Joint appointment, Mathematics and Statistics*)

Associate Professors

W.R. LaLonde (*Joint appointment, Systems and Computer Engineering*)

J.E. Neilson

Assistant Professors

J.J. des Rivieres (*Joint appointment, Computing Services*)

J.B. Oommen

J.R. Pugh

I. Reichstein

D.A. Thomas (*Joint appointment, School of Business*)

Registrar

B.R. Lifeso (*Joint appointment, Faculty of Science*)

Board of Management

J.E. Neilson, *Chairman*

J.G. Cushing (*Computing Services*)

J.D. Dixon (*Faculty of Science*)

F. Fiala (*School of Computer Science*)

C.S. Jones (*Faculty of Arts*)

W.R. LaLonde (*School of Computer Science*)

B.R. Lifeso (*Registrar*)

B. Pagurek (*Faculty of Engineering*)

J.S. Riordon (*Faculty of Engineering*)

M.W. Smith (*Faculty of Social Sciences*)

M.K. Sundaresan (*Faculty of Science*)

D.R.F. Taylor (*Faculty of Social Sciences*)

D.A. Thomas (*School of Computer Science*)

J.W. Tombaugh (*Faculty of Social Sciences*)

K.S. Williams (*Faculty of Science*)

C.M. Woodside (*Faculty of Engineering*)

General Information

Carleton's computer science programs take full advantage of campus-wide computing expertise and computing resources. In addition to courses offered by the school, courses cross-listed in computer science are offered by the Department of Systems and Computer Engineering (Faculty of Engineering), the Department of Mathematics and Statistics (Faculty of Science) and the School of Business (Faculty of Social Sciences).

Most of the computing resources for the program are provided by the University's central computers, a dual

Xerox Sigma 9 system and a Honeywell Level 66 system, operated by Computing Services. Languages supported by these facilities include FORTRAN, COBOL, PL/1, APL, and PASCAL. In addition, these facilities support emulators and cross-assemblers for a wide variety of micro- and mini-computers.

Carleton Computer Science Undergraduate Society

The Carleton Computer Science Undergraduate Society (CSUS) is open to all members of the University and exists for the purpose of aiding students in their study of computers and computing at Carleton. Publications and events are produced throughout the year which are of professional interest to students. Social activities are also organized to ensure a sense of belonging and camaraderie at Carleton. Faculty Adviser: J. Neilson.

Programs Offered

The School of Computer Science offers a program leading to the degree of Bachelor of Computer Science (Honours), B.C.S. (Hons.).

In addition, the School participates in a number of programs leading to combined Major or Honours Bachelor of Science degrees. The School also offers a number of introductory service courses that may stand alone in a program in another field of study, or be augmented by a selection of other computer science courses to form an area of specialization.

Bachelor of Computer Science (Honours), B.C.S. (Hons.) Program

The Bachelor of Computer Science degree is an Honours program in which candidates are required to complete twenty full-course credits or equivalent, after Senior Matriculation.

In order to provide the student with a choice of specialization, while at the same time ensuring that all relevant topics are covered, the program of studies is designed around a series of core courses combined with a choice of one of five program options. These options are designed to prepare graduates for professional careers in computer science related occupations or for advanced study at the graduate level.

The program is offered mainly in the Day division. Part-time students will find, however, that some of the courses are also available in the Evening division.

Admission Requirements

First Year

1. Completion of Qualifying University year in arts, engineering or science, with a grade-point average of 4.0 or better, and including Mathematics 69.006★ and 69.007★; or

2. The Ontario Secondary School Honour Graduation Diploma with a minimum 65% average and including functions and calculus. Physics is required for the hardware and scientific applications options and would also be advantageous for students electing the other options.

Advanced Standing

Applications for admission beyond First year will be assessed on their individual merits. Advanced standing will be granted only for those subjects assessed as being appropriate for the program and for the option elected.

Mature Matriculation

Persons who lack the normal entrance requirements as published in this calendar may receive consideration for admission under the mature matriculation policy. Applicants will normally have been away from full-time studies for a minimum of two years and must be twenty-one years of age, or over, by December 31 of the year in which they wish to enrol. For full details see p. 36.

Enrolment Limitation

Applicants should note that meeting the admission requirements can only establish eligibility for selection to the School of Computer Science.

Course Requirements

The program for the degree of Bachelor of Computer Science (Honours) consists of a total of twenty full-course credits, normally five taken each year, including at least seven credits from computer science, four from mathematics and statistics, two from the Faculties of Arts and Social Sciences, and to include at least two credits chosen from 400-level courses.

Because the study of computer science is necessarily structured, students are required to select a course of study from one of five options in addition to those courses of the core program. The options are:

1. Software
2. Hardware
3. Theory of Computing
4. Scientific Applications
5. Management and Business Systems

Core Courses

All students enrolled in the computer science degree program are required to complete the following core courses:

First Year

Mathematics 69.102 and 69.117★;
Computer Science 95.102★, 95.105★ and 95.106★.

Second Year

Mathematics 69.208★ and 69.217★;
Computer Science 95.202★, 95.203★ and 95.204★.

Third Year

Mathematics 69.311★;
Computer Science 95.304★, 95.384★ and 95.385★.

Fourth Year

Computer Science 95.401★ and 95.495★.

Program Options

Software Option

This option is intended for students whose interests include the design and implementation of large-scale software systems. Examples of such systems are language processors, operating systems and data management systems. Course requirements for the Software option are:

First Year

one full course in an experimental science.

Second Year

Mathematics 69.257★;
Computer Science 95.207★.

Third Year

one of Mathematics 69.304★, 69.309★, 69.351, 69.381★ or Computer Science 95.386★;
Computer Science 95.302★, 95.303★ and 95.310★.

Fourth Year

Computer Science 95.480★, 95.481★ and 95.484;
two computer science half courses at the 300 level or above.

Hardware Option

This option is intended for students seeking to combine an interest in computing with an interest in electronics. It prepares students for careers in the design and construction of both large- and small-scale computer systems. Course requirements for the Hardware option are:

First Year

Physics 75.100.

Second Year

Mathematics 69.257★;
Engineering 97.251★.

Third Year

one of Mathematics 69.304★, 69.309★, 69.351, 69.381★ or Computer Science 95.386★;
 one of Computer Science 95.206★ or 95.367★;
 Computer Science 95.303★, 95.310★;
 Engineering 97.357★.

Fourth Year

Computer Science 95.461★ and 95.480★;
 two engineering or computer science half courses at the 300 level or above.

Theory of Computing Option

This option is intended for students with an interest in the theoretical aspects of computer science. While retaining a good number of practical courses, the option emphasizes the theoretical aspects, thus providing the student with a sound foundation for graduate studies. Course requirements for the Theory of Computing option are:

First Year

one full course in an experimental science.

Second Year

Mathematics 69.257★;
 one of Computer Science 95.206★, 95.207★ or 95.367★;

Third Year

Computer Science 95.302★ and 95.386★;
 one computer science half course at the 200 level or above.

Fourth Year

one of Mathematics 70.482★, Computer Science 95.483★ or 95.486★;
 Computer Science 95.480★, 95.484★ and 95.485★;
 two computer science half courses at the 300 level or above.

Scientific Applications Option

This option is intended for students whose interest in computers centres around the applications of computers to science. It provides a strong framework of computer science courses to which additional science courses may be added. Course requirements for the Scientific Applications option are:

First Year

Physics 75.100.

Second Year

one of Computer Science 95.206★, 95.207★ or 95.367★.

Third Year

Mathematics 70.260;
 Computer Science 95.303★ and 95.386★.

Fourth Year

Computer Science 95.480★;
 two of Computer Science 95.387★, 95.405★, 95.481★ or 95.484★;
 three science or computer science half courses (or equivalent) at the 200 level or above.

Management and Business Systems Option

This option is intended for students whose interests include the application of computers to business. It is designed to prepare students for the careers in this field, with a combination of computer science courses and a strong component of courses selected from those offered by the School of Business. Course requirements for the Management and Business Systems option are:

First Year

Accounting 41.101★ and 41.102★;
 Economics 43.100.

Second Year

Management Studies 42.250★;
 Mathematics 69.257★;
 one commerce half course at the 200 level or above.

Third Year

Management Studies 42.310★;
 Computer Science 95.290★, 95.291★ and 95.391★.

Fourth Year

one of Mathematics 69.351, 69.381★ or Computer Science 95.386★;
 one of Computer Science 95.403★, 95.405★, 95.480★ or Management Studies 42.405★;
 two business half courses at the 300 level or above.

Counselling and Program Approval

Every student in the Bachelor of Computer Science degree program will be assigned a full-time faculty member who will act as a program adviser. Students are expected to seek counsel from their assigned advisers in such matters as selecting options and choosing elective courses. The advisers are responsible for approving both programs and course changes.

Combined Major and Honours B.Sc. Programs

A Combined Major program must include a minimum of four credits in computer science. A Combined Honours program must include a minimum of six credits in computer science. These requirements can be satisfied as follows:

Computer Science and Mathematics

Students in this program follow the prescribed Combined Honours B.Sc. program outlined on p. 405. The program features equal emphasis on mathematics and computer science.

Computer Science and Physics

Students in this program follow the prescribed Combined Honours B.Sc. program outlined on p. 421. The program features equal emphasis on physics and computer science.

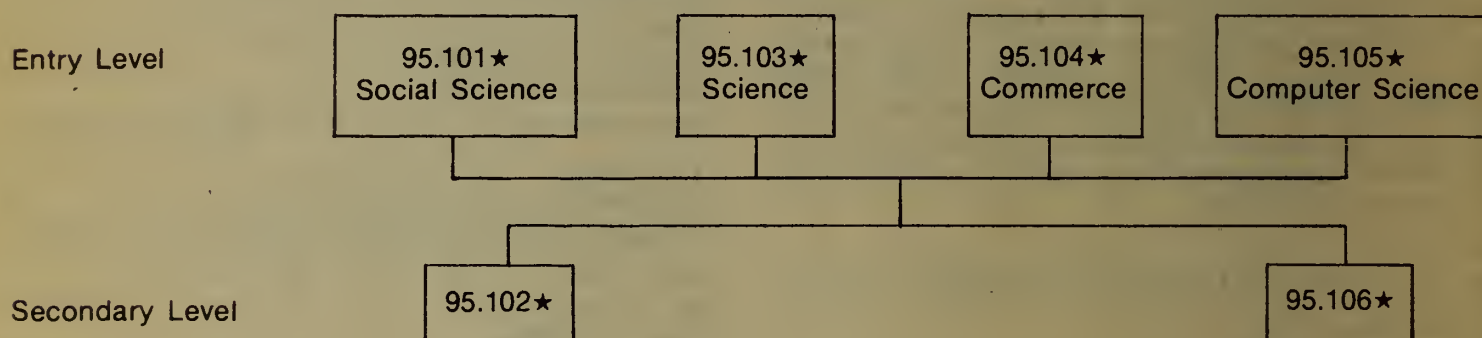
Computer Science and Integrated Science Studies

Students in the Faculty of Science may follow either Combined Major or Honours programs in computer science and integrated science studies. These programs permit greater flexibility in course selection than either of the foregoing combined programs. Students select non-science course sequences from computer science course offerings. See p. 398 for details.

Introductory Courses

The chart and the information that follows is provided to assist students in selecting introductory-level courses in Computer Science.

100-Level Computer Science Courses



Of the six 100-level half courses offered in computer science, four are introductory, Computer Science 95.101★, 95.103★, 95.104★ and 95.105★. Of these, the first three are service courses designed primarily for students in social sciences, science and business respectively. Computer Science 95.105★ is the introductory course required by B.C.S. students.

Normally, students will take only one of these four courses. The other 100-level courses, Computer Science 95.102★ and 95.106★, are intended to prepare students for higher level courses (both are components of the B.C.S. core) and both have as a prerequisite one of the introductory half-courses, preferably Computer Science 95.105★. Students wishing to take Computer Science 95.106★ who lack a knowledge of the programming language PASCAL because they chose an introductory course other than Computer Science 95.105★, will be required to familiarize themselves with PASCAL.

Students in the B.C.S. program or in a combined computer science degree program should note that credit will not be given for more than one of Computer Science 95.101★, 95.103★, 95.104★ or 95.105★. Although Computer Science 95.105★ is required in most of the foregoing programs, students may be allowed to substitute credit gained in Computer Science 95.103★ or 95.104★.

Computer Science Course Selection

The following table is designed primarily for B.C.S. students, to assist in both option and course selection. Since it is organized by specialization option, the table will also be useful to students in Combined Major and Honours programs as well as to students seeking a concentration in Computer Science within some other degree program. The table contains only Computer Science courses beyond the 100 level and does not include those in the B.C.S. core, (see p. 66).

Course Selection Guide

Option

Legends:

X - required course within the option

0 - specified in a selection list within the option

★ - unspecified course within the option but of particular interest

Course

	Software	Hardware	Theory of Computing	Scientific Applications	Management and Business Systems
95.206★ Digital Logic	★	0	0	0	
95.207★ Programming Languages II	X	★	0	0	★
95.290★ Introduction to Business Information Systems					X
95.291★ Quantitative Applications of Computers in Business					X
95.301★ Concurrent Programming	★	★	★	★	★
95.302★ Compiler Construction	X	★	X	★	
95.303★ Real-Time Computing Systems	X	X	★	X	
95.310★ Systems Analysis	X	X	★	★	
95.367★ Switching Circuits	★	X	0	0	
95.386★ Numerical Analysis	0	0	X	X	0
95.387★ Mathematical Software	★		★	0	
95.391★ Business Data Processing Systems	★				X
95.402★ Computer Graphics	★	★		★	★
95.403★ Transaction Processing Systems	★				0
95.404★ System Software	★	★		★	★
95.405★ Discrete Simulation and Its Applications	★	★	★	0	★
95.407★ Applied Artificial Intelligence	★		★		
95.457★ Introduction to Computer Architecture		★		★	
95.461★ Microprocessor Systems	★	X	★	★	
95.480★ Introduction to Software Engineering	X	X	X	X	★
95.481★ Software Engineering Project	X	★	★	0	★
95.483★ Topics in Applied Logic			0		
95.484★ Design and Analysis of Algorithms	X	★	X	0	★
95.485★ Theory of Automata	★		X		
95.486★ Numerical Analysis			0	0	
95.490★ Advanced Topics in Computer Science	★	★	★	★	★

Notes:

1. This chart does not show 100-level courses or B.C.S. core courses beyond the 100 level, of which the latter are relevant to students planning other programs of studies.

2. Certain courses are restricted with respect to credit allowable for them towards a B.C.S. degree and also

towards computer science credits in combined programs. In particular note that credit will be allowed for only one of Computer Science 95.101★, 95.103★, 95.104★ and 95.105★. Nor will credit be allowed for both Computer Science 95.290★ and 95.310★.

Academic Standing

Grading System

Standing in courses will be shown by alphabetical grades. The grades used, with their corresponding grade points, are as follows:

A+	12	B+	9
A	11	B	8
A-	10	B-	7
C+	6	D+	3
C	5	D	2
C-	4	D-	1

Standings to represent special circumstances are as follows:

Aeg

Pass standing granted although absent from final examinations. Aegrotat standing is granted only by the School of Computer Science Committee on Admission and Studies in response to a student's written request. It will be granted only in exceptional circumstances and if the term work has been of high quality.

F

Failure. No academic credit.

FNS

Failure, but with supplemental privileges withdrawn because of unsatisfactory term work or an unacceptably low mark in the examination. No academic credit.

Wdn

Withdrawn in good standing. No academic credit.

Abs

Failure due to absence from the final examination where the necessary term work has been completed. No supplemental privileges. No academic credit.

Def

Students who are absent from final examinations or who are unable to complete their course work for medical or compassionate reasons may apply to the School of Computer Science Committee on Admission and Studies for deferred examination privileges.

IP

In progress.

Computation of Averages

Using the twelve-point system set out above, the grade points earned in any specific course are determined by multiplying the grade points corresponding to a grade by the credit value of the course. Grade-point averages are calculated by dividing the total accumulated grade points by the total credits. Overall averages are calculated on the grades earned in all courses applicable to the degree. Computer science grade-point averages involve only those courses listed or cross-listed as computer science.

Unless otherwise indicated, courses are one full credit, indicated 1.0 on all record documents. Courses marked ★ are half-credit courses, indicated 0.5 on documents.

Course Load

The normal course load for a full-time student in the School of Computer Science, during the Winter session, is the equivalent of five full-course credits. The normal maximum course load for a part-time student, in the Winter session, is the equivalent of two full-course credits.

Students may register for a maximum of two course credits in the Summer session.

A student in good standing may exceed the normal course load only with the recommendation of the Director of the School of Computer Science.

Promotion from First Year

Full-time students in First year, in order not to fail their year in May, must, by then, have passed at least three full-course credits or equivalent. To be promoted to the course-credit system, a full-time student must pass, by the end of August, at least four credits from the First year of his or her chosen option with a grade-point average of 6.5 or better in computer science courses and at least 5.0 overall. (Grade-point averages are to include any failing grades.) Part-time students must meet the same grade-point standards and pass at least four of the first six approved credits attempted.

For all students, promotion to the course-credit system must be accomplished in not more than three years from the date of first registration in the B.C.S. program.

A student who fails to meet these promotion requirements is deemed to have failed First year and must forfeit credit for courses with grades of less than C- and is required to withdraw from the B.C.S. program. Such students are eligible to re-apply for admission and, if admitted, will repeat First year without encumbrances, retaining credit towards their degree (but not towards completion of First year) for all courses graded C- or better. A student who fails First year a second time forfeits his or her undergraduate status in the B.C.S. program and is ineligible for any further registration in the B.C.S. program.

Course Credit System

Students meeting promotion requirements at the end of First year will proceed on the course credit system. Under this system there is no promotion from one year to the next.

After promotion to the course credit system a student may accumulate a maximum of three credits in supplemental examinations, grade-raising examinations, repeated courses, course replacements.

To continue in the B.C.S. program a student must, by the end of August each year, have gained credit in the past 12 months towards the B.C.S. degree and have a cumulative grade-point average of 6.5 or better in computer science courses and 5.0 or better overall. (Grade-point averages are to include any failing grades.) Failure to comply with these standards requires withdrawal from the program. Such students may, however, be eligible to transfer into another degree program. Guidance of the Registrar of the School of Computer Science should be sought in such cases.

Examinations

General regulations on examinations are on pp. 46-47. In addition, the following regulations apply to students in the B.C.S. program.

Supplemental Examinations

Students may request a supplemental examination in a course graded *F*. Application to write supplemental examinations must be made at the School of Computer Science Registrar's Office by the designated date.

Deferred Examinations

Students unable to write a final examination because of illness or for compassionate reasons may apply within one week after the final examination to the School of Computer Science Registrar's Office for permission to write a deferred examination. Permission can be granted only if the absence is fully and specifically supported by a medical certificate or other documents.

Grade-Raising Examinations

A student may apply to the School Registrar's Office to write a grade-raising examination in a course already passed. The grade received on this examination will supersede the previous grade whether it is higher or lower.

Graduation

Application to Graduate

Students expecting to graduate in the Spring must make application on the form available in the School Registrar's Office by February 1, those expecting to graduate in the Fall, by September 1, and those expecting to graduate in February, by December 1.

Graduation Requirements

To qualify for graduation with a Bachelor of Computer Science degree with Honours a student must:

1. present credits for at least twenty approved full courses (or equivalent) beyond Qualifying University year, including at least thirteen full courses at the 200 level or higher;
2. meet the course requirements of the School of Computer Science for at least one of the B.C.S. program options;
3. meet the minimum grade-point standards for Honours as stated below;
4. complete the program within seven years of the entry to the course credit system;
5. be recommended by the School Council and the Management Board of the School of Computer Science.

Designations of Honours Degrees

Three designations of Honours are awarded, determined on the basis of the grade-point average as follows:

Highest Honours

10.0 - 12 in computer science courses, and
8.0 or better overall

High Honours

9.0 or better in computer science courses, and
7.0 or better overall

Honours

6.5 or better in computer science courses, and
5.0 or better overall

Courses Offered

Some of the following Computer Science courses are cross-listed from other parts of the calendar. In every such case, only one course is actually offered and the two numbers are alternate identifiers for this single course. Students in the B.C.S. program should register in such a course under the Computer Science number.

Note:

In all courses with programming assignments students usually find it necessary to be on campus at other than the scheduled lecture periods to make use of computing facilities.

Computer Science 95.101★

Introduction to Computers for the Social Sciences

This course is intended to give students in arts and social sciences a working knowledge of computers and their uses: computer fundamentals; use of time-sharing facilities; programming in a high level language; use of SPSS in simple statistical data analysis. Precludes additional credit for Computer Science 95.103★ and 95.105★ and Engineering 94.165. This course cannot be taken for credit by students in Engineering, Computer Science or Science.

Day division, First term; Day and Evening divisions, Second term: Lectures three hours a week.

Computer Science 95.102★

Introduction to Computers

This course is designed to introduce the student to the organization and operation of computer systems. Concepts of machine and assembly languages are explained. Lectures and programming exercises cover such topics as: addressing modes, subroutine calling conventions, internal data representation

Precludes additional credit for Engineering 94.165.

Prerequisite: One of Computer Science 95.101★, 95.103★, 95.104★ or 95.105★.

Day division, First term; Day and Evening divisions, Second term: Lectures three hours a week.

Computer Science 95.103★

Introduction to Scientific Computing

A first course in computer programming primarily for students in the Faculty of Science. Introduction to computers and algorithms. Use of the Carleton time-sharing system. Introduction to FORTRAN programming through examples taken from mathematics and science. Basic procedures: summing, sorting, looping. Iterative solutions to problems. Non-numeric programming. Random numbers. Simulation of simple physical systems. The computer system: inside the computer. Use of the batch system. Efficient and structured programming.

Precludes additional credit for Computer Science 95.101★ or Engineering 94.165.

Prerequisites: One of Mathematics 69.107★, 69.117★, 69.127★, 69.102, 69.112, which may be taken concurrently.

Day and Evening divisions, First term; Evening division, Second term: Lectures three hours a week.

Computer Science 95.104★

Introduction to Data Processing

This course is designed to give students an understanding of data processing by teaching COBOL and illustrating its use in detailed case studies. Besides COBOL, emphasis is placed on methods of analysis,

specification and design. The following topics are covered: review of operational methods in data processing, implementation and design methods; the COBOL language; sequential file processing including file design, creation, update and backup; report generation, sorting and merging techniques, tape file maintenance; direct access file processing; introduction to data base techniques. Programming assignments in COBOL.

Day and Evening divisions, First term; Day division, Second term: Lectures three hours a week.

Computer Science 95.105★

Introduction to Programming

A first course in computer programming designed for students who wish to specialize in computer science. The emphasis is on a structured approach to the design of programs. The language of instruction is PASCAL. Topics include: programming style, documentation, and testing, and a variety of non-numeric applications — text formatting, graphical techniques. Day and Evening divisions, First term: Lectures three hours a week and one hour tutorial.

Computer Science 95.106★

Computer Applications

A continuation of Computer Science 95.105★ designed to give students more programming experience. Applications of computers to various problems using PASCAL including both non-numeric and numeric techniques. Topics include: solution of equations, integration, interpolation, language translation, interpretation techniques.

Prerequisite: Computer Science 95.105★, or alternatively one of Computer Science 95.101★, 95.103★, 95.104★ and a rudimentary knowledge of PASCAL. Evening division, First term; Day division, Second term: Lectures three hours a week.

Computer Science 95.202★

Data Structures and Data Types

A course designed to provide in-depth experience in the design and construction of computer programs involving data structures. The language of instruction is PASCAL. The data structures, including stacks, queues, lists, trees and records are presented from the viewpoint of the advanced programming concept known as a data type.

Precludes additional credit for Engineering 94.202.

Prerequisite: Computer Science 95.106★.

Day division, First term: Lectures three hours a week.

Computer Science 95.203★

Computer Organization

A thorough treatment of computer system organization. Micro, mini, and mainframe architectures. Instruction sets and addressing modes. Input/output methods and devices. Micro-coded interpreters. Operating system functions, virtual I/O and memory management techniques.

Prerequisite: Computer Science 95.102★ or Engineering 94.165.

Day division, First term: Lectures three hours a week.

Computer Science 95.204★

Programming Languages I

A course intended to increase the breadth and depth of students' understanding of popular programming languages. Emphasis is placed on COBOL and FORTRAN with appropriate programming exercises in both of these languages. This course is intended for computer science students lacking courses in these languages.

Prerequisite: Computer Science 95.106★.

Day division, Second term: Lectures three hours a week.

Computer Science 95.206★

Digital Logic

Fundamental concepts in digital logic; Boolean algebra, gates, flip-flops, combinatorial networks, fundamentals of minimization, sequential finite state machines, counters, and registers.

Prerequisite: Computer Science 95.102★.

Day division, Second term: Lectures three hours a week, laboratory three hours a week.

Computer Science 95.207★

Programming Languages II

This course provides students with an introduction to the study of programming languages. It emphasizes language semantics, enabling a study of the fundamental differences and similarities of several important programming languages (e.g., LISP) to be made.

Prerequisite: Computer Science 95.106★.

Day division, Second term: Lectures three hours a week.

Computer Science 95.290★

An Introduction to Business Information Systems

This course develops an understanding of computer technology as it applies to business. The course describes various hardware and software technologies in terms of their impact on business systems. Typical computer applications are discussed to illustrate how the computer may be used in a business environment. Methods for specifying and implementing business information systems are introduced. (Also listed as Management Studies 42.290★.)

Prerequisites: Computer Science 95.104★ or 95.204★ and Accounting 41.100 (or 41.101★ and 41.102★).

Day and Evening divisions, First and Second terms: Lectures three hours a week.

Computer Science 95.291★

Quantitative Applications of Computers in Business

This course introduces the computer as a problem-solving tool in business. The interactive language APL and various program packages such as SPSS are used to solve problems in finance, marketing and accounting. Typical areas from which problems are selected are: questionnaire processing, time series analysis, budgeting, PERT/CPM, decision trees, portfolio analysis, inventory control and simulation. (Also listed as Management Studies 42.291★.)

Prerequisites: One of Computer Science 95.101★, 95.104★, or 95.105★, and Economics 43.220 (or Mathematics 69.257★) and Management Studies 42.250★. (The latter two may be taken concurrently.) Day division, First term: Lectures three hours a week.

Computer Science 95.301★

Concurrent Programming

Sequential processing, coroutines and backtracking are introduced as special cases of concurrent processing. The more general concept is then investigated. Topics include the process concept, low-level and high-level process synchronization primitives, Petri nets, message passing, data-driven versus control-driven program execution. Emphasis is placed on applications in such areas as the parallel evaluation of expressions, real-time transactions systems, fault-tolerant computing and operating systems.

Prerequisite: Computer Science 95.202★.

Day division, Second term: Lectures three hours a week.

Computer Science 95.302★

Compiler Construction

The structure, organization and design of the phases of a compiler are considered: lexical translators, syntactical translators, scope handlers, type checkers, code generators and optimizers. Components of a compiler will be implemented for a suitably simple subset of a PASCAL-like language. (Also listed as Engineering 94.302★.)

Prerequisite: Computer Science 95.202★.

Day division, First term: Lectures three hours a week.

Computer Science 95.303★

Real-Time Computing Systems

An introduction to the use of minicomputers as real-time, interactive systems, using the PDP-11 as the primary example. Computer organization: structure, representation of instructions, numbers and characters; addressing modes, arithmetic and logical operations. Programming techniques: assembly language coding and interfacing to high level languages, input/output: via program control, priority and vectored interrupts, and direct memory access. Peripherals: tele-type register, programmable clock, analog/digital converters, interactive graphics processor. Applications to digital signal processing and data communications. (Also listed as Engineering 94.303★.)

Text: Eckhouse and Morris, *Minicomputer Systems: Organization, Programming and Applications*.

Prerequisite: Engineering 94.165 or Computer Science 95.102★ or previous experience in assembly language.

Day division, Both terms: Lectures two hours a week, laboratory two hours a week. Limited enrolment.

Computer Science 95.304★

File Structures and Data Bases

Introduction and definitions of data base systems. File system organizations: sequential, indexed-sequential, direct access and multiring files, hybrid organization.

Hardware and its parameters: mechanical storage, magnetic tapes, rotating magnetic storage and large capacity storage devices. Physical implementations: hierarchical and network structures, storage allocation. System evaluation: estimates of system usage, storage requirements and cost-benefit comparison. (Also listed as Engineering 94.304★.)

References: Knuth, *The Art of Computer Programming, Volume III: Searching and Sorting*; *The Codasyl Report*.

Prerequisite: One of Computer Science 95.202★ or 95.303★ (may be taken concurrently) or 95.203★.

Day division, Second term: Lectures three hours a week.

Computer Science 95.310★

Systems Analysis

Introduction to the concepts and techniques of problem definition and analysis. Various approaches to system identification, specification and presentation are discussed. Students work in teams to test their analysis skills on case studies of information systems. Systems analysis tools: decision tables, flow diagrams, Gantt charts, activity networks, costing. Data and file description: forms-oriented techniques, languages. Document description. Phases in a project: feasibility study, input/output analysis and design, document and file design, system design implementation and project control. The course emphasizes applications in computer-based information systems, but the techniques used are of wider applicability. (Also listed as Engineering 94.310★.)

Reference: Burch and Strater, *Information Systems: Theory and Practice*.

Prerequisite: A full First-year credit in Computer Science.

Day division, Second term: Lectures three hours a week.

Computer Science 95.367★

Switching Circuits

Boolean algebra, gates, combinatorial circuits, canonical forms. Binary arithmetic, two's complement notation, multiplication and division. Arithmetic logic units, programmable logic arrays, read-only memories. Introduction to synchronous sequential circuits, finite state machines, state minimization. MSI registers, counters, finite state machine realization using MSI. Register transfer languages; bit slice processors, introduction to micro-code, parallel bus structures. (Also listed as Engineering 94.367★)

Prerequisite: Engineering 97.251★ or permission of the department.

Text: Roth, *Fundamentals of Logic Design*.

One term: Lectures three hours a week, laboratory three hours, alternate weeks. Offered both terms.

Computer Science 95.384★

Data Structures and Algorithm Analysis

Review of basic data structures such as stacks, queues, and lists. Algorithms for their implementation.

Representation of arrays, sets and relations. Trees and graphs – representation and applications. Basic techniques of design and analysis of efficient algorithms for sorting and searching. Hashing, dynamic storage allocation, garbage collection. A substantial part of the assigned work in this course requires use of the computer. (Also listed as Mathematics 69.384★.)

Prerequisites: A Second-year Mathematics course and Computer Science 95.202★.

Day division, First term: Lectures three hours a week and one hour tutorial.

Computer Science 95.385★

Discrete Structures and Applications

Algebraic structures; lattices, Boolean algebra; elements of the theory of directed and undirected graphs; combinatorics; Polya theory of enumeration languages over an alphabet; switching circuits, optimization and complete design, algebraic codes, flow charts, connectivity, minimal paths. A substantial part of the assigned work in this course requires use of the computer. (Also listed as Mathematics 70.385★.)

Precludes additional credit for Mathematics 70.310.

Prerequisite: One of Mathematics 69.218★, 70.210 or 69.311★.

Day division, Second term: Lectures three hours a week and one hour tutorial.

Computer Science 95.386★

Numerical Analysis

Elementary discussion of error, polynomial interpolation, quadrature, linear systems of equations and matrix inversion, non-linear equations, difference equations and ordinary differential equations. A substantial part of the assigned work in this course requires use of the computer. (Also listed as Mathematics 69.386★.)

Precludes additional credit for Computer Science 95.366★, no longer offered.

Prerequisites: Computer Science 95.103★, or 95.106★ and Mathematics 69.102 (or 69.207★) and 69.112 (or 69.217★) or 69.201, 69.202 or 69.203.

Day division, First term: Lectures three hours a week and one hour tutorial.

Computer Science 95.387★

Mathematical Software

Incorporation of basic numerical methods into efficient, reliable software. The course includes examination of existing software systems e.g., linear systems, non-linear systems, optimization, or differential equations. A substantial part of the assigned work in this course requires use of the computer. (Also listed as Mathematics 69.387★.)

Prerequisite: Computer Science 95.366★ or 95.386★.

Day division, Second term: Lectures three hours a week and one hour tutorial.

Computer Science 95.391★

Business Data Processing Systems

The purpose of this course is to develop the skills necessary to participate in the construction of business data processing systems. Computer science and non-computer science students will form project teams to design and implement a particular system. Lectures are based on case studies and seminars. Student projects are drawn, where possible, from actual problem areas in the business community. Typical projects include: inventory control, payroll, general ledger, project cost accounting, simulation, information retrieval, computer auditing. (Also listed as Management Studies 42.391★.)

Prerequisite: Computer Science 95.290★ or 95.310★.
Day division, Second term: Lectures three hours a week.

Computer Science 95.401★

Operating Systems

A unifying view of existing operating systems and a basis for the design of future ones. Programming techniques and algorithms for handling concurrency; structure and implementation of operating system kernel routines; performance implication of scheduling and memory management strategies; deadlock problems; special problems if time permits, covering distributed processing, protection, recovery, integrity and reliability. Assignments will involve the use of ADA as a solution description language. (Also listed as Engineering 94.401★.)

Prerequisites: One of Computer Science 95.203★, or 95.303★ or equivalent experience.

Text: R.C. Holt et al., *Structured Concurrent Programming with Operating Systems Applications*.

Reference: Wegner, *Programming with ADA: An Introduction by Means of Graduated Example*.

Second term: Lectures three hours a week.

Computer Science 95.402★

Computer Graphics

This course is designed to give students an introduction to the basic principles and techniques of computer graphics: Overview of graphics hardware, techniques for defining images; point, vector and raster approaches. Image transformations; scaling, translation, rotation, clipping, windowing. Graphics software and data structures. Input devices and techniques for interactive graphics. Raster graphic systems. An introduction to three-dimensional graphics; transformations, perspective, hidden line removal. Applications of computer graphics.

Prerequisites: Computer Science 95.384★ or Engineering 94.202★ and Computer Science 95.304★.

Day division, First term: Lectures three hours a week.

Computer Science 95.403★

Transaction Processing Systems

This course investigates the design and implementation of on-line data base intensive transaction

processing systems. The functional components of a transaction processing system are examined, tracing the transaction flow from user terminal input to user terminal response. Case studies of current systems are used to illustrate design alternatives and implementation techniques. Topics covered in the course include: data entry - the user/terminal interface; teleprocessing - the terminal/host interface; TP monitors - the operating system/application interface; transaction design; journaling and recovery.

Prerequisites: Computer Science 95.204★ and 95.304★.
Day division, First term: Lectures three hours a week.

Computer Science 95.404★

System Software

A thorough examination of computer system software from the functional and design points of view: user interfacing; command interpreters; file management systems; accounting systems; text editors; debugging systems. Examples will be drawn from several systems including CP/M, UNIX and CP6.

Prerequisites: At least two of Computer Science 95.202★, 95.203★, 95.204★, 95.303★ or Engineering 94.202★

Day division, Second term: Lectures three hours a week.

Computer Science 95.405★

Discrete Simulation and its Applications

Simulation as a problem-solving tool. Simulation modelling perspectives. Probability concepts in simulation. Network modelling, simulation and problem solving using SLAM. Discrete event simulation using SLAM. Analysis of simulation output. Simulation languages. (Also listed as Engineering 94.405★.)

Prerequisite: Fourth-year registration or permission of the department.

Text: Pritsker and Pegden, *Introduction to Simulation and SLAM*.

Second term: Lectures three hours a week, problem analysis one hour a week.

Computer Science 95.407★

Applied Artificial Intelligence

Reviews LISP and advanced LISP programming techniques. Introduces practical tools and techniques used in artificial intelligence applications, e.g., discrimination nets, heuristic search, deductive information retrieval, question answering techniques, problem reduction, story generations, knowledge representation. The objective of the course is to produce working demonstration programs.

Prerequisite: Computer Science 95.207★.

Day division, First term: Lectures three hours a week.

Computer Science 95.457★

Introduction to the Architecture of Computing Systems

The course begins with a comprehensive historical review of computing machines from early history through Pascal and Babbage to present day architectures with emphasis on the evolution of concepts, the influence of technology and the techniques evolved to increase performance. The second major portion of the course presents a structured view of methodologies as they currently exist (for gate, register and processor design) with particular stress on their limitations. Detailed analysis and design are then undertaken for controllers, processors and memory systems, using existing machines as examples. A range of such component implementations are extended for enhanced performance leading to discussions of super computers. Computer classification schemes are examined. The course concludes with a discussion of systems of computers and related problems. (Also listed as Engineering 94.457★.)

Prerequisite: Computer Science 95.367★.

Text: Hayes, *Computer Architecture and Organization*.
Second term: Lectures three hours a week.

Computer Science 95.461★

Microprocessor Systems

Four main areas are covered: microprocessor chip internal architectures, instruction sets and operation for two selected chips, one high level and one low level; basic microprocessor system architectures in terms of buses, memories and devices; assembly language programming of system functions such as interrupt and device handling; device interfacing techniques. (Also listed as Engineering 94.461★.)

Prerequisite: Computer Science 95.367★ or permission of the Department of Systems and Computer Engineering.

Texts: Zaks, *Microprocessors; MCS-80/85 Family User's Manual*.

First and Second terms: Lectures three hours a week, laboratory three hours alternate weeks.

Computer Science 95.480★

Introduction to Software Engineering

Software engineering may be defined as the specification, design and production of software in an environment characterized by the need for a project team, by the necessity of satisfying client requirements and by the imposition of time, budget and technology constraints. This course introduces students to problems and methods of producing quality software in such an environment. The course is divided into five main sections: introduction; review of structured programming; specification and design; production; and advanced issues. Topics covered include: program design by stepwise refinement and divide-and-conquer; design and specification of systems of sequential and concurrent programs using "blueprints", tabular methods and advanced language concepts; reliability; design for implementation and maintenance; organization

and control of the development process and of the project team; automated aids to development; an introduction to packaged design methodologies; hardware and software technology constraints and tradeoffs; a look at the future. Advanced issues are illustrated using ADA. A knowledge of PASCAL is assumed. (Also listed as Engineering 94.480★.)

Prerequisite: Computer Science 95.202★ or 95.303★.

Reference: Pyle, *The ADA Programming Language*.

Day division, First term: Lectures three hours a week.

Computer Science 95.481★

Software Engineering Project

Students participate in a team project to develop a small piece of stand-alone software in an organized and structured fashion. Non-numeric applications are emphasized. All phases of the project are considered equally important: specification, design, implementation, testing and documentation. (Also listed as Engineering 94.481★.)

Prerequisite: Computer Science 95.480★ or concurrent registration.

Day division, Second term: Tutorial three hours a week.

Computer Science 95.483★

Topics in Applied Logic

Recursive functions and computability, algorithms, Church's thesis, Turing machines, computational logic. (Also listed as Mathematics 70.483★.)

Prerequisite: Mathematics 70.210 or Computer Science 95.384★ or permission of the school.

Day division, Second term: Lectures three hours a week and one hour tutorial.

J.C. Poland

Computer Science 95.484★

Design and Analysis of Algorithms

Design techniques: divide-and-conquer, backtracking, dynamic programming, search methods. Algorithms for graph problems, optimization problems, algebraic problems. Lower bounds and the P-NP question. Some of the assigned work in this course requires use of the computer. (Also listed as Mathematics 70.484★.)

Prerequisite: Computer Science 95.384★ or permission of the school.

Day division, First term: Lectures three hours a week and one hour tutorial.

W.H. Cunningham

Computer Science 95.485★

Theory of Automata

Finite automata and regular expressions, properties of regular sets, context-free grammars, pushdown automata, deterministic context-free languages. Turing machines, the Comsky hierarchy. Undecidability, intractable problems. Some of the assigned work in this course requires the use of the computer. (Also listed as Mathematics 70.485★.)

Prerequisite: Computer Science 95.385★ or Mathematics 70.310 or permission of the school.

Day division, First term: Lectures three hours a week and one hour tutorial.

F. Fiala

Computer Science 95.486★

Numerical Analysis

Study of matrix inversion techniques; techniques of finding eigenvalues and eigenvectors, solution of systems of linear equations; direct and indirect methods, their comparison and error analysis; applications in optimization and other areas. Some of the assigned work in this course requires use of the computer. (Also listed as Mathematics 70.486★.)

Prerequisites: Permission of the school.

Day division, Second term: Lectures three hours a week and one hour tutorial.

J.D. Dixon

Computer Science 95.490★

Advanced Topics In Computer Science

Selected topics in computer science offered by members of the School of Computer Science.

Prerequisite: Permission of the school.

Day division, One term: Lectures three hours a week.

Computer Science 95.491★

Directed Studies

A course of independent study under the supervision of a member of the School of Computer Science, open only to students in the B.C.S. program. Students are required to obtain their supervisor's written approval prior to registration and are limited to two such courses in their programs.

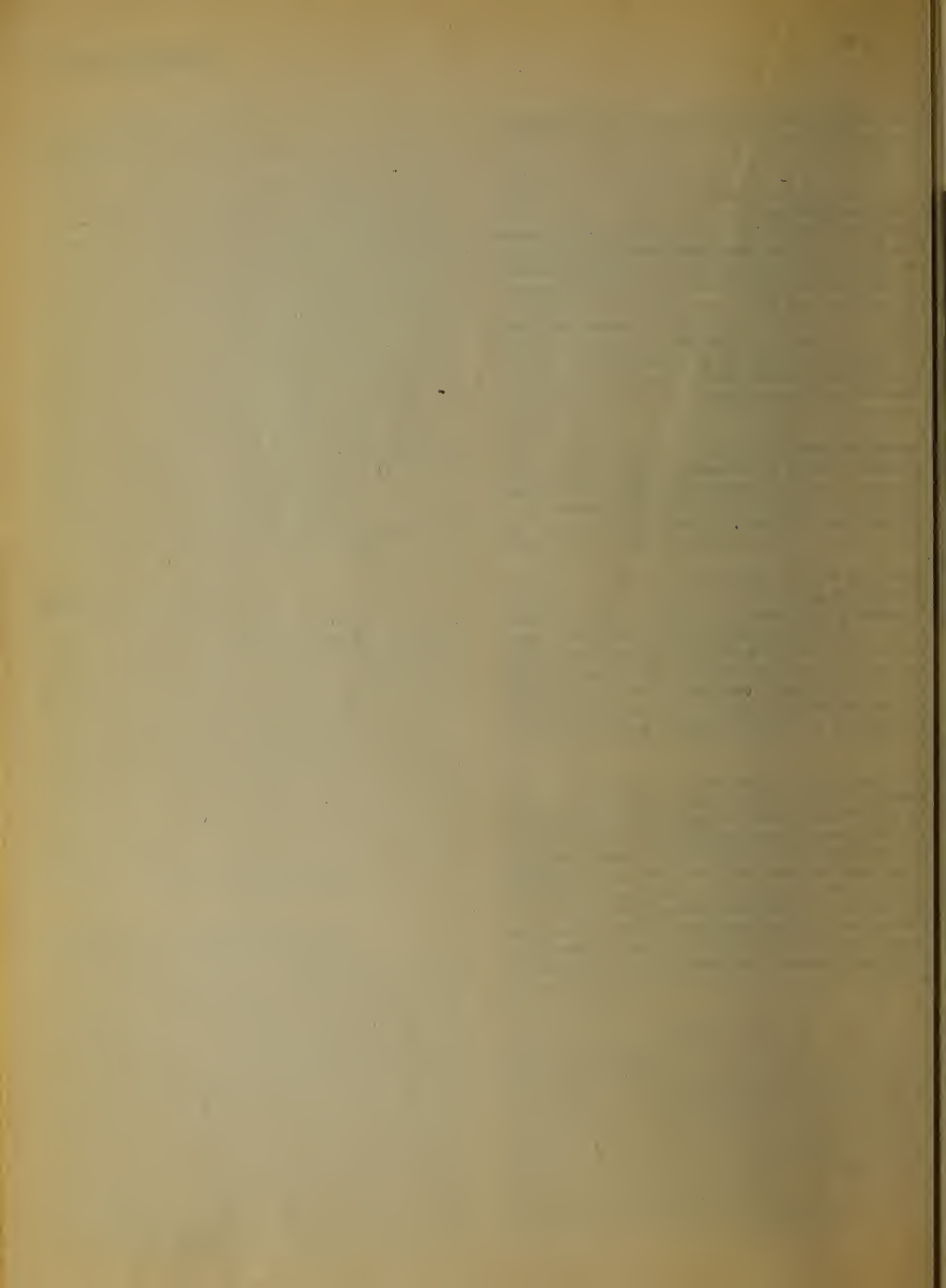
Prerequisite: Permission of the School of Computer Science.

Computer Science 95.495★

Honours Project

As part of the Fourth-year program, each B.C.S. student is required to select and complete a major project in computer science. Students are required to submit written project proposals to the Director of the School of Computer Science for approval on or before November 1 of their final academic year.

Prerequisite: Fourth year registration in either the Bachelor of Computer Science program or one of the Combined Honours programs involving Computer Science.



Faculty of Arts



Officers of the Faculty

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N.E.S. Griffiths

Associate Dean

J. Yalden

Assistant Dean and Registrar

J.I. Jackson

Directory of Offices

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2009 Arts Tower, 231-3760

Office of the Associate Dean,
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Registrar's Office,
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Co-ordinator,
1726 Arts Tower, 231-4372

English, D. Wurtele, Chairman,
1812 Arts Tower, 231-3847

English as a Second Language, J. Yalden, Program
Director,
239 Paterson Hall, 231-5657

Film Studies, C. Faulkner, Chairman,
427 St. Patrick's College Building, 231-6755

French, S. Robinson, Chairman,
1602 Arts Tower, 231-3754

German, J. Goheen, Chairman,
1315 Arts Tower, 231-2605

History, J.W. Strong, Chairman,
400 Paterson Hall, 231-2777

Italian, M. Ciavolella, Chairman,
1427 Arts Tower, 231-4481

Journalism, G.S. Adam, Director,
346 St. Patrick's College Building, 231-5530

Linguistics, I. Pringle, Chairman,
247 Paterson Hall, 231-5573

Mass Communication, J.R. Weston, Supervisor,
346 St. Patrick's College Building, 231-5530

Medieval Studies, D. LeBerrurier, Co-ordinator,
2209 Arts Tower, 231-7519

Music, D. Piper, Chairman,
A911 Loeb Building, 231-3633

Philosophy, B. Wand, Chairman,
2125 Arts Tower, 231-3868

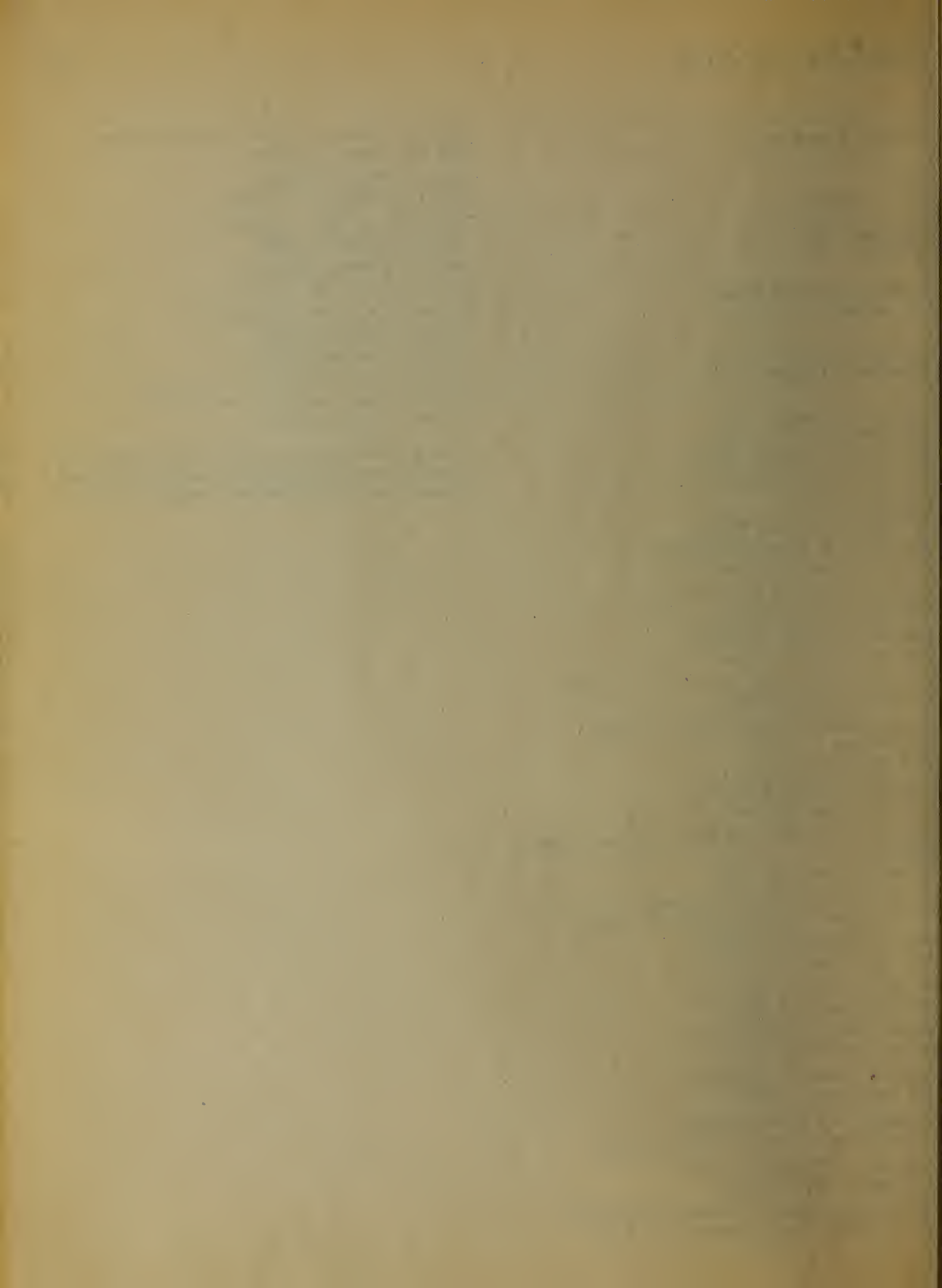
Religion, R. Polzin, Chairman,
2116 Arts Tower, 231-3863

Russian, B.W. Jones, Chairman,
1301 Arts Tower, 231-4488

Spanish, R. Larson, Chairman,
1419 Arts Tower, 231-4465

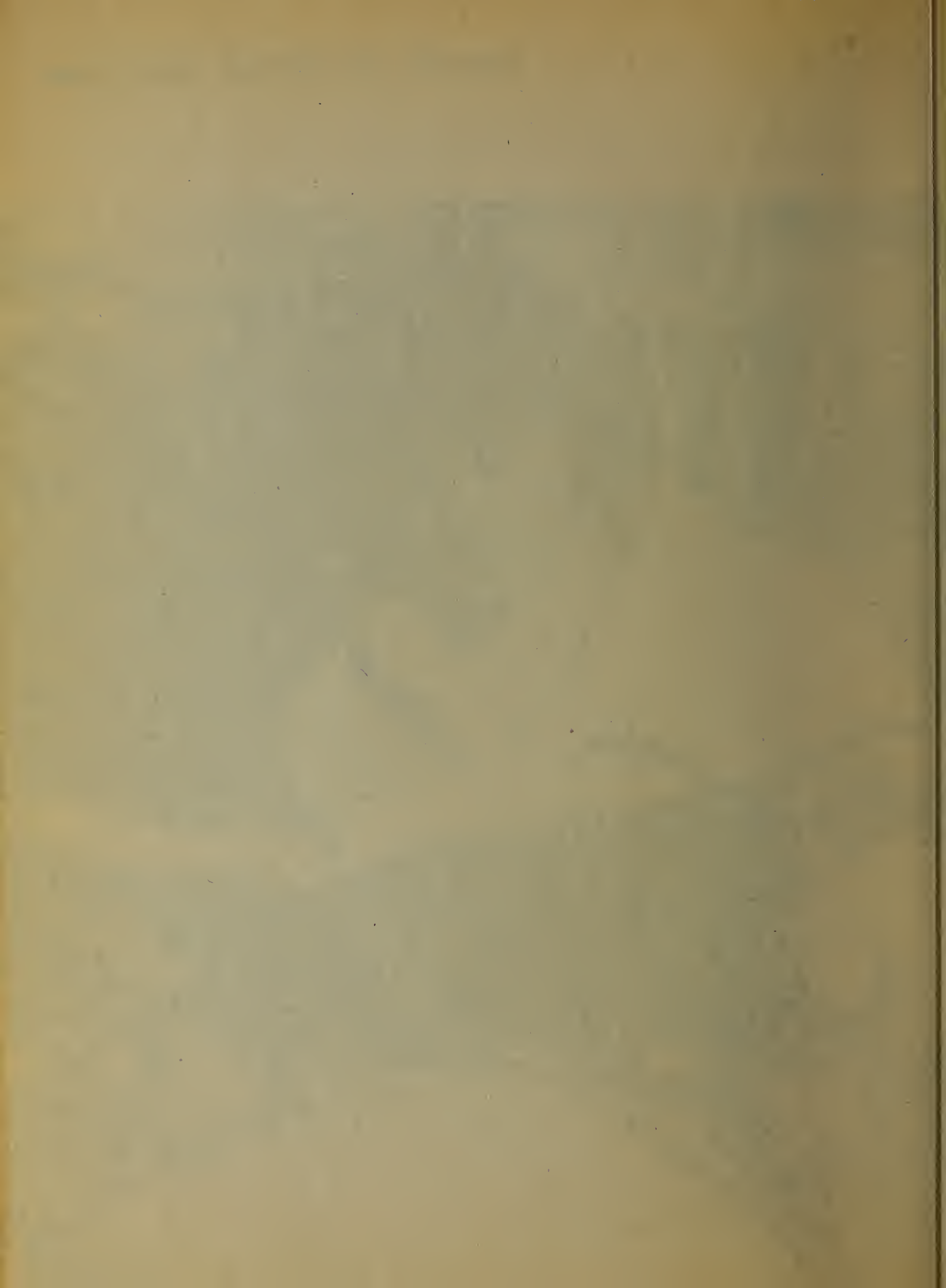
Women's Studies, A. Squire, Co-ordinator
2116 Arts Tower, 231-3863

*Graduate level programs only. For details please see
Graduate Studies and Research Calendar. For under-
graduate courses in Comparative Literature see p. 128.



Faculty of Social Sciences





Officers of the Faculty

Dean

D. Forcese

Assistant Dean and Registrar

J.I. Jackson

Directory of Offices

Office of the Dean,
B450 Loeb Building, 231-3703

Registrar's Office,
312 Paterson Hall, 231-6690

Accounting, See Business

African Studies, F. Taylor, Chairman,
B459 Loeb Building, 231-4403

Anthropology, See Sociology-Anthropology

Asian Studies, L. Librande, Chairman,
2213 Arts Tower, 231-3863

Biology, H.G. Merriam, Chairman,
583 Tory Building, 231-3871

Business, A. Bailetti, Director,
901 Arts Tower, 231-4373

Canadian Studies, P. Smart, Co-ordinator,
1717 Arts Tower, 231-4474

Criminology and Corrections, K. Hatt, Co-ordinator,
B750 Loeb Building, 231-6650

Directed Interdisciplinary Studies, L. Mann, Co-ordinator,
1726 Arts Tower, 231-4372

Economics, K. Acheson, Chairman,
C871 Loeb Building, 231-4377

Geography, T. Wilkinson, Chairman,
B340 Loeb Building, 231-2641

International Affairs*, J.H. Sigler, Director,
2A57 Paterson Hall, 231-2693

Law, R.L. Campbell, Chairman,
D586 Loeb Building, 231-7540

Mathematics, K. Williams, Chairman,
712 Arts Tower, 231-5500

Political Science, R.J. Jackson, Chairman,
B640 Loeb Building, 231-2697

Psychology, W.G. Webster, Chairman,
B551 Loeb Building, 231-3636

Public Administration, A. Maslove, Director,
1001 Arts Tower, 231-6360

Social Work*, L. Rutman, Director,
469 St. Patrick's College Building, 231-3677

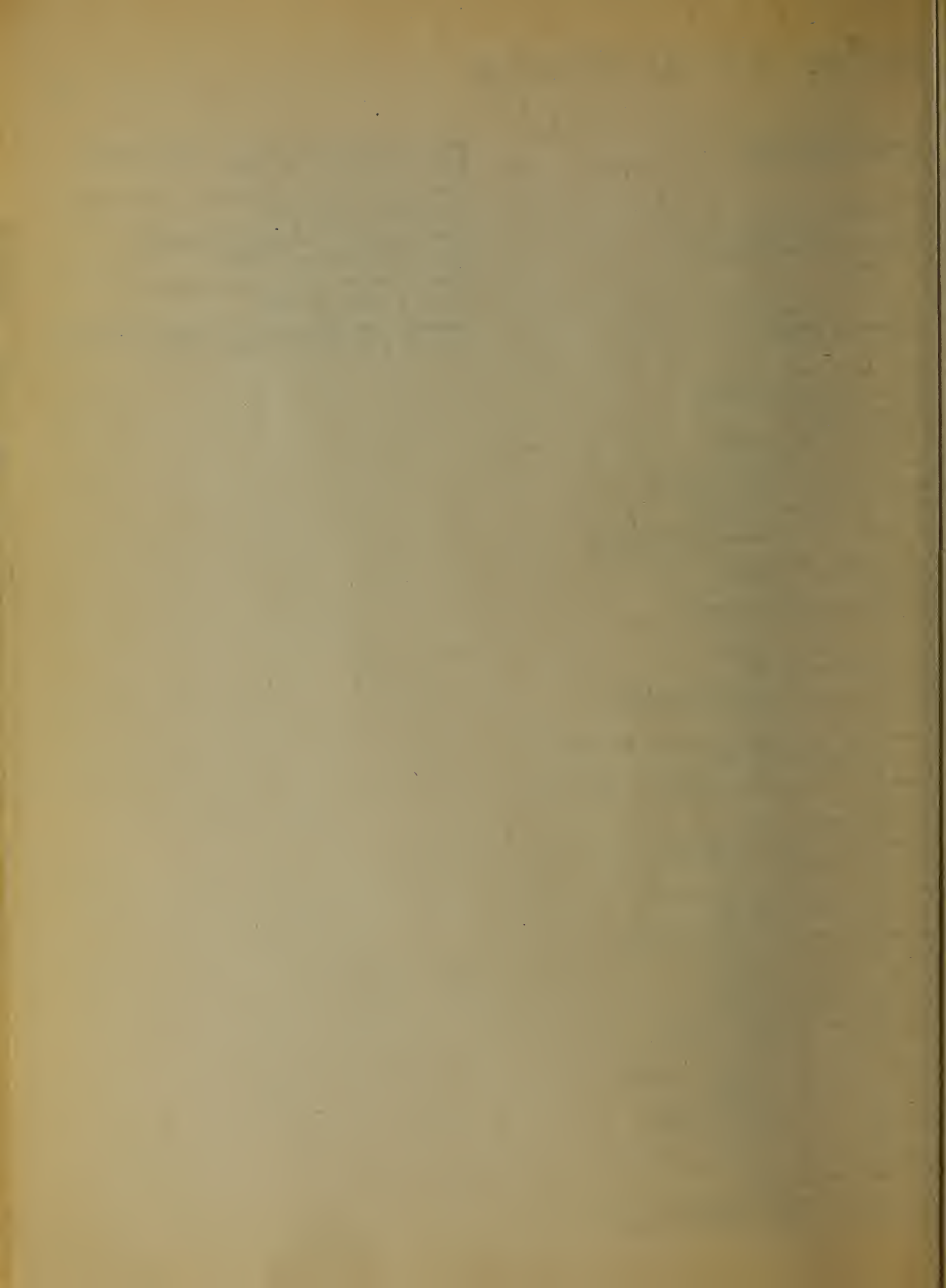
Sociology and Anthropology, G. Irving, Chairman,
B750 Loeb Building, 231-6650

Soviet and East European Studies, L. Black, Director,
461 Paterson Hall, 231-2711

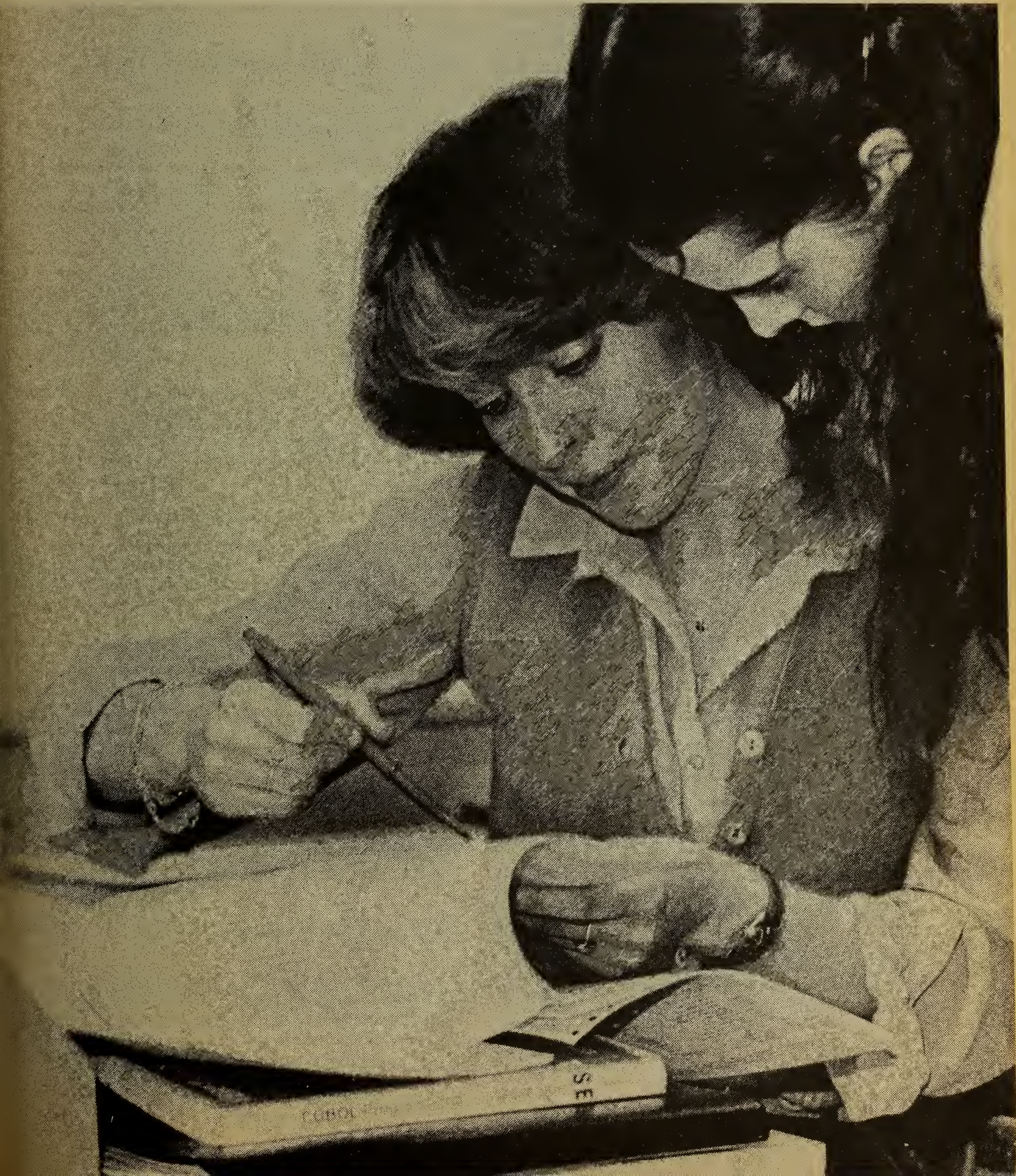
Urban Studies, J. Tunbridge, Co-ordinator,
B350A Loeb Building, 231-3659

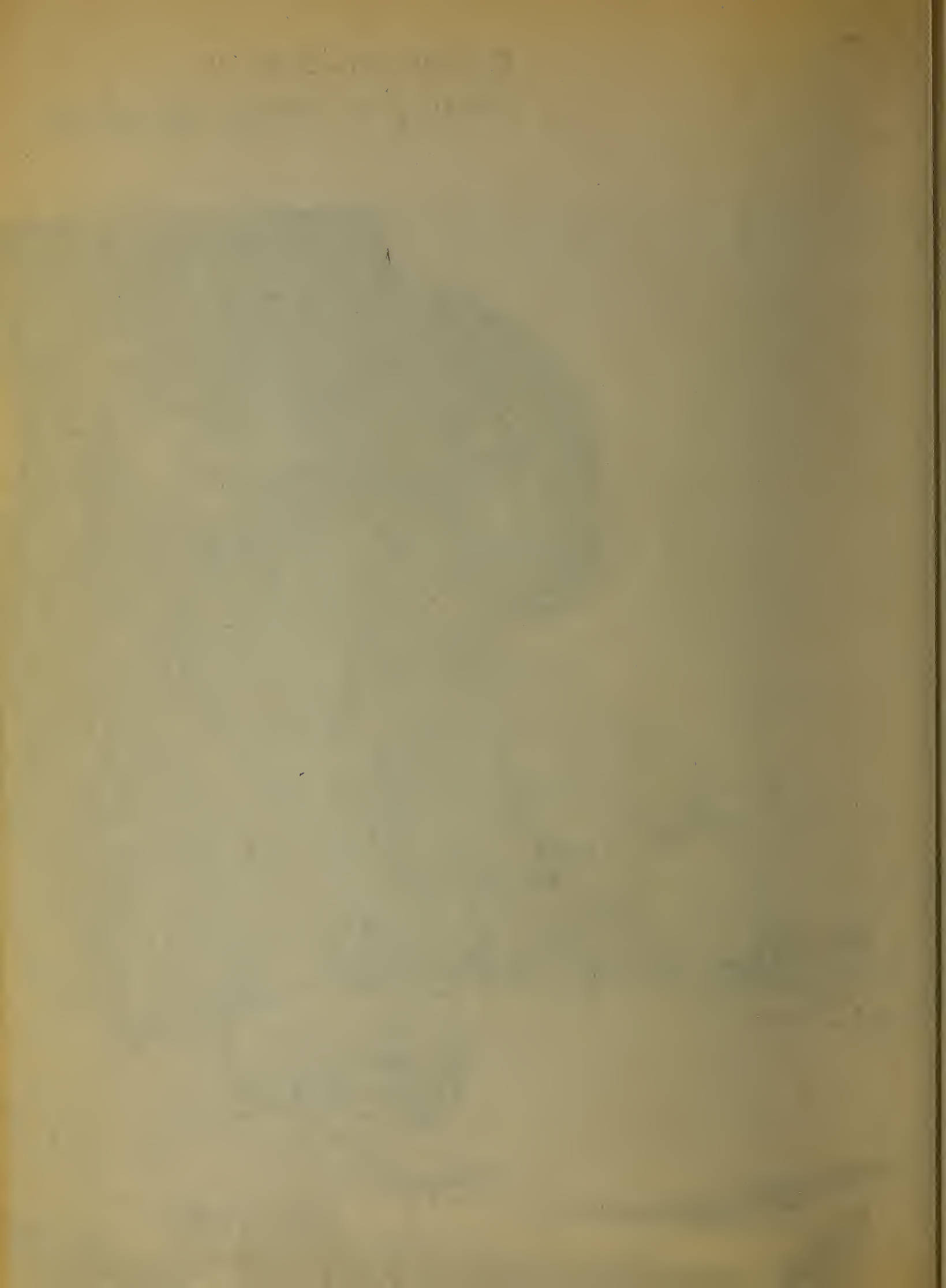
Women's Studies, A. Squire, Co-ordinator,
2116 Arts Tower, 231-3863

*Graduate level program only. For details please see
Graduate Studies and Research Calendar.



Faculty of Arts
Faculty of Social Sciences





Faculty of Arts; Faculty of Social Sciences Degree, Certificate and Diploma Programs

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Degree, Certificate and Diploma Programs

The Faculties of Arts and Social Sciences offer programs in six degrees, five certificates and one diploma.

Bachelor of Arts and Bachelor of Arts with Honours (B.A.)

The three year Pass B.A. program provides a liberal university education of value either as a general intellectual preparation for a great number of non-specialized careers, or as an introduction to subsequent specialized study. The program offers the degree with Major or Combined Major, or in Directed Interdisciplinary Studies.

The four-year program for the Honours B.A. provides more rigorous and extensive study in one or two disciplines. The Honours degree is necessary for entry to certain fields of employment, and is a desirable preparation for graduate studies and professional training, including teaching.

Bachelor of Commerce (B. Com.)

The four-year Honours program in Commerce provides a foundation in the disciplines essential to careers in business. The program is offered by the School of Business.

Bachelor of Journalism (B.J.)

The four-year Honours program and the one-year post-degree Honours program are both designed to prepare students for careers in the mass media. The program is offered by the School of Journalism.

Bachelor of Music (B.Mus.)

The four-year Honours program prepares students for graduate studies in musicology and ethno-musicology, and gives an essential background for careers in music librarianship, music administration, and teaching. The program is offered by the Department of Music.

Bachelor of Public Administration

The four-year Honours program provides a foundation in the disciplines relevant to the practice of public administration. The program is offered by the School of Public Administration.

Certificate in English Language and Composition (C.E.L.C.)

A five-credit post-degree certificate intended primarily for practising teachers, to upgrade their knowledge of areas of language and of writing theory which underlie the new Ontario guidelines. Also open to persons without a degree who hold a teaching certificate.

Certificate in French Language Studies

This is a six-credit program designed to permit people who already have some knowledge of French to achieve a high level of proficiency in the language. The program should be of particular interest to mid- and senior-level public servants, business people, teachers and other professionals as well as members of the general public. The program is offered by the Department of French.

Certificate in Public Service Studies (C.P.S.S.)

This is a six-credit program in public service subjects at the undergraduate level. The program is offered by the School of Public Administration.

Certificate in the Teaching of English as a Second Language (C.T.E.S.L.)

This is a five-credit program in the theory and practice of teaching English as a second language. The program is offered by the Department of Linguistics.

Certificate in Law Enforcement Studies (C.L.E.S.)

A six-credit program designed primarily for persons employed in the area of law enforcement, national security or corrections. The program is co-ordinated by the Department of Sociology and Anthropology.

Diploma in Music (Dip.M.)

This is a one-year undergraduate program in music combining musical performance with courses in general musical literacy, theory and history of music. It is offered by the Department of Music.

Disciplines of Specialization

The following table illustrates the choice of specialization available in the B.A. program. Commerce is available only in the B.Com. program. Honours in journalism is available in the B.J. program, but journalism may also be taken as a combined Honours subject in the B.A. (Honours) program. Honours specialization in music is available in the B.Mus. program, but music is also available as a Major, combined Major, or Combined Honours subject in the B.A. program.

For a B.A. with Major or Combined Major, students must present a total of fifteen credits if admitted to First year, or twenty if admitted to Qualifying University year. For a B.A. with Honours or combined Honours, students must present a total of twenty credits if admitted to First year, or twenty-five if admitted to Qualifying University year. Program requirements are set out in detail in the departmental entries in this calendar.

Specializations in the B.A. Programs

Code:

M: Major

CM: Combined Major

H: Honours

CH: Combined Honours

Anthropology **H, CH**

Art History **M, CM, H, CH**

Biology **M, CM, H, CH**

Canadian Studies **M, CM, CH**

Classical Civilization **M, CM, H, CH**

Computer Mathematics **M, H**

Directed Interdisciplinary Studies **M**

Economics **M, CM, H, CH**

English **M, CM, H, CH**

Film Studies **M, CM, H, CH**

French **M, CM, H, CH**

Geography **M, CM, H, CH**

German **M, CM, H, CH**

Greek **M, CM, H, CH**

History **M, CM, H, CH**

Italian **M, CM, CH**

Journalism **CH**

Latin **M, CM, H, CH**

Law* **M, CM, H, CH**

Linguistics **M, CM, H, CH**

Mass Communication **M, CM, H, CH**

Mathematics **M, CM, H, CH**

Music **M, CM, CH**

Operations Research **H**

Philosophy **M, CM, H, CH**

Political Science **M, CM, H, CH**

Psychology* **M, CM, H, CH**

Religion **M, CM, H, CH**

Russian **M, CM, H, CH**

Sociology* **H, CH**

Sociology/Anthropology* **M, CM**

Soviet and East European Studies **H, CH** (may be combined with journalism only)

Spanish **M, CM, H, CH**

Statistics **H**

*A concentration in criminology and corrections is offered in conjunction with specialization in law, psychology, and sociology/anthropology.

Academic Clubs and Societies

The following clubs and societies serve to broaden and enrich the curriculum, and to offer students social activity and friendship related to their intellectual interests. The societies listed here are particularly pertinent for students registered in the faculties of Arts or Social Sciences.

The Carleton University Biology Society sponsors a variety of academic events including meetings between faculty and students, seminars and field trips. The society also uses social functions to promote informal contact between faculty and students, and is active in acquainting students with on-going biological research. Faculty adviser: Dr. M.B. Fenton.

The Carleton Cinema Club, open to all members of the University, promotes film events through public screenings, its own magazine, and a film production unit. Faculty sponsor: Professor Mark Langer.

The Classics Academic Society sponsors public lectures by visiting speakers and student-faculty social gatherings. Faculty co-ordinator: Chairman of the Classics Department.

The Carleton Commerce Society organizes social and academic events to strengthen the link between students, faculty, and the business community; and to promote stronger ties among business students. Academic co-ordinator: Christopher Bruton.

ELSS, the *English Literature Students' Society*, open to all students, offers theatre trips, work with a printing press, a lecture series, writers' groups, debating groups, reading groups, parties and the publication of a creative writing monthly. Faculty liaison: M.I. Cameron, H.P. Duchemin, M.P. Thompson.

The Club Francophone is open to all members of the University interested in the French language and in French and French-Canadian culture. The Club promotes informal language practice and sponsors speakers, discussions, musical and social events, films and excursions. Faculty adviser: S. Robinson.

The Carleton University Geography Society (CUGS) organizes lunch-time talks or movies of academic interest and a variety of social events, promotes student-faculty contact, and sponsors the Harvey Humbolt Chair of Geomorphography.

The German Academic Society (formerly Deutschklub) is open to all members of the University interested in the language and culture of German-speaking countries. Weekly meetings with films and speakers are featured. Faculty contact: Chairman of the German Department.

The Ottawa Historical Association is a "town and gown" association of people interested in history, offering a series of lectures and discussions.

The Carleton Italian Cultural Society, in collaboration with the Department of Italian, sponsors a series of lectures on Italian topics, Italian films, social events, and informal discussions for those interested in the language.

The Carleton University Journalism Students' Union offers a program including talks, seminars and panel participation by distinguished journalists.

MATHSOC, the *Carleton University Mathematics Society* promotes contact among students of mathematics and statistics and faculty by sponsoring social events, seminars and films. Faculty co-ordinator: Dr. John Poland.

The Department of Music is affiliated with three groups which are open to anyone who is interested, and which perform both on and off campus through the year. *The Twentieth Century Performance Group* specializes in music by avant-garde composers and

students in the department. *The Madrigal Singers* specializes in sixteenth- and seventeenth-century madrigals. It is a group of 15 to 20 and auditions may be required. The *Collegium Musicum* comprises three sub-groups: *The Carleton Renaissance Consort*, concentrating on sixteenth- and seventeenth-century instrumental and vocal music; *The Carleton Medieval Consort*, of instrumentalists performing music up to the fifteenth-century; and *The Carleton Viol Consort*, playing string music of the sixteenth and seventeenth centuries. In addition, there is The Music Society, a group of students that sponsors various activities including *Tuesday Night at Eight*.

The Carleton University Student *Journal of Philosophy* is a student-operated publication that publishes articles written by students from across Canada. Editor: G. Solomc

The Political Science Forum, the academic society of the Department of Political Science, promotes communication among students and faculty through seminars, speakers, symposia and social events.

The Public Administration Undergraduate Society organizes social and academic events to strengthen ties between students and faculty and to help acquaint students with current issues in public administration.

The Liberal Religious Society, open to all members of the University, conducts a regular program of symposia and meetings, to which guest speakers are invited, which explore all facets in man's continuing spiritual quest. Student Co-ordinator, Diane Stevenson, 733-5219, 231-3918.

CASA, *the Society for Students of Spanish*, welcomes all members of the University interested in Latin American and Spanish cultures and language. The emphasis is on the practice of the spoken language in a relaxed atmosphere and on sponsoring films, lectures and social events to expose others to these cultures.

The Academic Regulations

Office of the Assistant Dean and Registrar, Faculties of Arts and Social Sciences

Assistant Dean and Registrar
J.I. Jackson

Associate Registrar
C.E. Dence

Academic Counsellors
M. Foulger
K. McGillivray
J. Nordenstrom

The Office of the Assistant Dean and Registrar is a source of general information on the faculties' academic programs. Specific information about course

content, subject matter, and the structure of Major or Honours programs is obtainable from the academic departments.

Index

The regulations are grouped for ease of reference under indexed headings as follows:

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 - 2.2 Readmission
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 - 3.2 Late Registration
 - 3.3 Credit Value
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 - 3.8 University of Ottawa Exchange Agreement
 - 3.9 Courses from other Faculties
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 - 3.11 Residence
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- 8.2 First Year
- 8.3 Course Selection

1. Administration of the Regulations

1.1 General Administration

The regulations on the following pages apply, except when noted, to all degree and certificate programs of the faculties administered by the Faculty Registrar's Office and the student's school or Major department. The Faculty Registrar's Office provides an academic counselling service, and students are urged to seek the service's advice on all questions about the regulations, and in particular before taking any action affecting promotion and probation, withdrawal, transfer of credit, review of grades, and change of major or degree program. Appointments: 322 Paterson Hall (231-7407).

1.2 Student Responsibility

The student is responsible for knowing the regulations and complying with them. Specific written permission must be obtained for exceptions to the regulations. Routine approval of a records form (for example the registration contract or course-change form) does not constitute approval of an exception.

1.3 Requests and Appeals

The Faculties' Committee on Admission and Appeals is responsible for considering student requests for special consideration respecting the regulations. Decisions on requests are made by the Assistant Dean and Registrar according to guidelines set by the Committee. Students may have such decisions reviewed by making an appeal to the Committee.

Requests and appeals are made in writing to the Faculty Registrar's Office, if possible on the forms provided. Students should discuss their requests or appeals with a counsellor. The circumstances of any request or appeal are held in the strictest confidence.

2. Admission, Readmission, and Degree Transfer

2.1 New Students

Detailed requirements for initial admission to the Faculties' degree and certificate programs are given on pp. 31-37.

2.2 Readmission

Students in the following categories are required to apply for readmission before registration. Readmitted students are governed by the regulations in effect at the time of readmission.

(a) Students who after graduation wish to pursue a further degree;

(b) Students who have been absent from the University for two consecutive Winter sessions and the intervening Summer session;

(c) Students who have been admitted to and taken courses at any other post-secondary institution since their last registration at Carleton (except students studying on a Letter of Permission from the Faculty Registrar's Office);

(d) Students who have forfeited degree status.

Note:

Applications for readmission (obtainable from the Admissions Office) must be filed before July 1 for the Winter session and before April 1 for the Summer session.

2.3 Change of Degree Program

Applications to change degree programs must be made to the Faculty Registrar's Office by August 2 for the Winter session, by December 1 for Second term of the Winter session, and by April 1 for the Summer session.

3. Registration

3.1 Registration

Students are to complete their course registrations by the registration periods shown for the session or term in the schedule for the Academic Year on pp. 11-13.

3.2 Late Registration

Registration after the registration period incurs a late registration fee. Registration is not permitted after the late registration period.

3.3 Credit Value

Unless otherwise indicated, courses in the Faculties are of one full credit, indicated 1.0 on all records documents. Courses marked ★ are half-credit courses, indicated 0.5.

3.4 Course Load

(a) Normal Load:

In the Winter session full-time students may register in the equivalent of five half-credits per term, part-time students in two half-credits per term, audited courses included.

In the Summer session students may enrol in up to two credits. This total includes audited courses and supplemental and grade-raising examinations.

(b) Overload

Permission to exceed these limits may be granted by the Faculty Registrar to students with a C average overall and in the Major (failures included) who completed a full course load in the previous session (five credits if full-time, two if part-time). The maximum permissible load in any term of the Winter session is six half-credit equivalents for full-time students and three half-credit equivalents for part-time students. Qualifying University year students may not exceed the normal load.

3.5 Auditing

Students may, with the instructor's permission, register in courses as auditors. (See p. 43 for details.) Auditors receive no grade and no credit for the course. The deadline for changing from audit to credit will be the final date for registration; for changing from credit to audit the deadline is the last withdrawal date.

3.6 Change of Course and Section

Changes of course, or of section within a course, must be reported to the Faculty Registrar's Office by the following dates:

Winter full session: September 24
First term: September 24
Second term: January 14
Second term full session: January 14

3.7 Withdrawal

Students withdrawing from courses or from their entire program must notify the Faculty Registrar's Office by the following dates. Students receiving scholarships or financial assistance should consult the Awards Office before dropping courses.

Winter full session: February 18
First term: November 19
Second term full session: March 18
Second term: March 18

For Summer session 1982 see the Summer Session Calendar

For Summer session 1983 see the Academic Year pp. 11-13.

Note:

The onus for notifying the Registrar's Office of withdrawal rests solely with the student. Ceasing to attend

lectures or informing the instructor does not constitute withdrawal, and normally results in an Abs or FNS grade.

3.8 University of Ottawa Exchange Agreement

Students maintaining full-time registration may, during their Second or higher year, take their fifth credit at the University of Ottawa without additional fee. Registration, on forms provided at the Faculty Registrar's Office, should be commenced early because of the early registration period at the University of Ottawa.

Students withdrawing from an exchange agreement course must notify both Universities, or a grade of Abs or FNS may be recorded.

Grades are transferred to the student's Carleton record for courses taken at the University of Ottawa under this agreement.

3.9 Courses from Other Faculties and Schools

Students must consult the Faculty Registrar's Office about registering in courses from other Faculties and Schools. Science and interdisciplinary courses are generally acceptable. Courses in architecture, engineering and industrial design are generally not acceptable and registration in these courses is normally not permitted. Professional courses in journalism are not acceptable options in most majors in the B.A. program.

3.10 Transfer of Credit

Students in good standing who have completed at least five credits at Carleton may, with prior permission, take courses at another university and have the credit transferred to their program at Carleton. The following regulations on transfer of credit do not apply to students studying under exchange agreements, i.e., at Chambéry, Trois Rivières, and the University of Ottawa.

Maximum Load

Subject to the regulations of the host university, a Carleton student on a Letter of Permission may take a maximum of 2.0 credits in the Summer and 5.0 credits in the Winter session.

Transfers of Grade

(a) Grades for courses taken on Letters of Permission will not be transferred.

(b) The Major department or the Registrar may require that the student obtain a minimum grade higher than the passing grade. The student shall be notified of such a requirement when the Letter of Permission is issued. Should the student pass the course but fail to meet this minimum grade, credit will not be recorded.

(c) Failure on a course taken elsewhere will be recorded with the appropriate credit value.

(d) If a student writes a supplemental examination in a course taken on a Letter of Permission, both the failure and subsequent grade will be recorded.

Reporting

(a) Students are required to present to Carleton an official transcript showing results in courses taken on a Letter of Permission. If the transcript is not forthcoming, the course will be awarded a failing grade.

(b) Students completing a final credit for a degree on a Letter of Permission during the Winter session are warned that transfer grades may not be available in time for Spring graduation.

Application and Fees

(a) Applications for a Letter of Permission must be obtained from the Faculty Registrar's Office. The application form must be returned to that office accompanied by a photocopy of the official description of the course.

(b) Applications for a Letter of Permission must be made by November 15, 1982, for January registration; March 31, 1983, for Summer registration; and July 29, 1983 for September registration.

(c) A fee of \$10.00 per course assessed will be charged. The maximum fee in any session will be \$50.00. (Students should note that this is a "per course", not a "per-course-credit" fee, i.e. two half credits will cost \$20.00, while one full credit will cost \$10.00.)

(d) *Students who take courses without obtaining a Letter of Permission will not be granted credit for the courses. Permission obtained from an instructor or from a department does not obligate the University to accept a credit.*

3.11 Residence Requirement

To obtain a degree from Carleton University, students must present a minimum of five credits taken at Carleton. These five credits must include credits in the Major or Honours subject(s) as follows:

Major: 3.0 credits;

Combined Major: 3.0 credits in one subject and 2.0 credits in the other;

Honours: 4.0 credits including the Honours thesis or comprehensive examination where it is a requirement of the program;

Combined Honours: 3.0 credits in one subject and 2.0 credits in the other including the Honours thesis or comprehensive examination where it is a requirement of the program.

Departments may require that certain of these credits be at the senior level.

3.12 Student Records

Incorrect address information will delay the receipt of awards, examination results, and notification of changes in academic status. Students must notify the

Faculty Registrar's Office immediately of any change in:

(a) permanent or home address (used for final grades and permits to register);

(b) local address (used for all mail during the academic session);

(c) telephone number for permanent address and for local address;

(d) name.

3.13 Challenge for Credit

A student with experience and non-university learning equivalent to a specific Carleton course may receive credit for that course through the Challenge for Credit procedure. If a department is satisfied that a student is adequately grounded in a course, credit may be granted by examination, without the normal requirements of attendance and instruction. Not all departments participate in this procedure. A \$50.00 fee is charged for each challenge. A student may present no more than five challenged credits in a degree program. Students must enquire at the Faculty Registrar's Office.

4. Promotion and Continuation

4.1 Standing in Courses

Standing in courses is shown by alphabetical grades as described on p. 45. Supplemental examinations are graded by the same scale.

In addition the following symbols apply in the Faculties of Arts and Social Sciences:

Abs

Absent from formally scheduled final examinations where the necessary term work has been completed. (This grade bears academic penalty in that for purposes of promotion and calculation of certain averages it is interpreted as an *FNS* grade.)

Aeg

A passing grade granted on the basis of course work when no further assessment is considered feasible (see also 5.2). *Aegrotat* is granted only with the approval of the Committee on Admission and Appeals.

Def

Final grades deferred for personal or medical reasons with approval of the Committee on Admission and Appeals.

IP

Honours thesis or essay is "In Progress". (See p. 97.)

4.2 Computation of Averages

The twelve-grade-point system is set out on p. 45. The grade points earned in any specific course are determined by multiplying the grade points corresponding

to the grade by the credit value of the course. Thus an A+ in a half-credit course will earn the student six grade points, while A+ in a two-credit course would be worth twenty-four grade points.

Grade-point averages are calculated by dividing the total accumulated grade points by the total credits. Both the credits and the grade points are doubled in the case of double-weighted courses.

Averages for graduation are calculated on the grades earned in the number of courses required for the degree, taking first into consideration the grades earned in the courses of the Major or Honours department. Some departments include all courses in the Major/Honours field; others include only those required by the program. Failures are not included in the calculation of graduation averages.

4.3 Promotion from Qualifying University Year and First Year

A full-time student must pass four credits and obtain C- or better in two credits. A part-time student must pass four of the first six credits attempted and obtain C- in two credits.

4.4 Course Credit System

Students meeting promotion requirements at the end of First year will proceed on the course credit system. Under this system there is no further promotion from one year to the next.

After promotion to the course credit system a student in a three-year degree program may accumulate failing grades (*F*, *FNS*, *ABS*), grade-raising examinations and repeated courses equivalent to no more than five credits. A student in an Honours program may accumulate only three. (A failed full-credit course followed by a failed supplemental count as two discredits.)

Students who have not graduated seven years after promotion to the course credit system may have their remaining requirements reviewed.

4.5 Conditional Pass

Full-time students who are not on the course credit system and not on probation, and who pass 3.0 or 3.5 credits in the Spring examinations will be considered to have passed their year conditionally. They must meet the requirements of 4.3 by the end of the August examination period, by taking Carleton Summer courses or writing supplementals to a maximum of two credits.

A student who has passed conditionally may write supplemental examinations and take replacement courses in not more than a total of two credits in the Summer session.

4.6 Failure and Probation

A student who fails to meet the promotion requirements in 4.3 and 4.5 and who is not on the course credit system has failed. Credits passed will count towards the degree, but may not be used to meet subsequent promotion requirements.

A student who has failed may return on probation. To clear probation a full-time student must pass four credits and obtain C- or better in two credits in the Spring final examinations. A part-time student must pass four credits of the next five attempted and obtain C- in two of these credits. Students on probation may not write supplemental or grade-raising examinations or receive letters of permission.

4.7 Suspension

A student on probation who fails to meet the terms of probation is suspended and becomes ineligible for further registration in a degree program in the Faculties of Arts or Social Sciences.

A student is also suspended when more than five credits-worth of failing grades (*F*, *FNS*, *Abs*), grade-raising examinations and repeated courses are accumulated.

Students under suspension may be readmitted to a degree program only by meeting terms prescribed by the Committee on Admission and Appeals. These terms will be prescribed individually in response to the student's appeal which should be made immediately after suspension.

Courses taken while a student is under suspension will not establish eligibility for readmission or for a degree.

4.8 Accelerated Progress

Students admitted to Qualifying University year may have some or all of the courses taken in Qualifying University year count toward the degree if they:

- (a) have completed at Carleton one year's full-time study;
- (b) have no failure or grade-raising examinations on their record; and
- (c) present a minimum B- (7.0 average) on 5 credits, i.e. a total of 35 grade points.

Application forms are available in the Faculty Registrar's Office and should be submitted upon completion of the first year of study after advice from a counsellor.

5. Examinations

General regulations on examinations are on pp. 46-47. In addition the following regulations apply to students in the Faculties of Arts and Social Sciences.

5.1 Supplemental Examinations

Students may request a supplemental examination in a course graded *F*. Supplementals are not available in all courses. Courses graded *FNS* or *Abs* are not eligible for supplementals. The symbol *FX* on the Statement of Marks indicates that there is no supplemental examination in that course.

5.2 Deferred Examinations and Final Papers

Students unable to write a final examination or complete the final term paper because of illness or other circumstances beyond their control may apply *within fourteen days* to the Faculty Registrar's Office for permission to write a deferred examination or extend a term paper deadline. Permission can be granted only if the absence is fully and specifically supported by a medical certificate or other documents.

Students unable to complete a course may apply for aegrotat standing (*Aeg*), but this will be granted only in exceptional circumstances and if term work has been of high quality. As *Aeg* indicates only a passing standard, students aiming for a high grade-point average may prefer to write a deferred examination.

Deferred examinations are not granted to students who make travel plans that conflict with the examination period.

5.3 Grade-Raising Examinations

A student may apply to write an examination in a course already passed. No more than three grade-raising examinations may be written in any degree program (including Qualifying University year). Please refer to "Grade-Raising Examinations", p. 46.

The grade received on this examination will supersede the previous grade whether it is higher or lower. For this reason students are strongly advised to consult a counsellor before applying for a grade-raising examination.

5.4 Review of Grades

Students wishing to receive a review of a final grade should enquire at the Faculty registrar's office within fourteen days of the official release of grades for the term. A review may raise or lower a grade, or leave it unchanged.

5.5 Eligibility

(a) No student may write supplemental and/or grade-raising examinations in more than two credits in any academic year.

(b) Students on probation may not write supplementals or grade-raising examinations.

(c) Students who pass conditionally in the Spring but fail to meet the terms of promotion by the end of the Summer may not write supplementals or grade-raising examinations on Summer courses.

5.6 Repeated Courses

Students may repeat a course for which they have received a passing grade. The grade awarded will supersede the original final grade whether higher or lower. It must be noted that the repetition of the course will count as a discredit.

6. Entry and Continuation: Major and Honours Programs

6.1 Major Programs: B.A.

Students should apply to enter or change their Major affiliation as soon as possible after completing the relevant introductory course. Students are required to enter a Major after promotion from First year, unless granted exemption by the Assistant Dean. Application may be made during registration, or through the Faculty Registrar's Office.

Students are required to be in a Major to register in Third year; those ineligible to enter a Major will be ineligible to register in the B.A. program.

To be accepted into a Major, students must have at least a C- average in the courses of their Major or Majors.

Students whose Major average is less than C- at the end of Second year may be required to withdraw from their Major.

6.2 B.A. (Directed Interdisciplinary Studies)

Students should apply for admission to the program on promotion from First year, or, if transferring from a Major program, before beginning their final five credits. The application must stipulate a minimum of eight credits related to a theme or topic of concentration. Normally three credits of the eight must be among the students' final five credits.

Application forms, available at the Faculty Registrar's Office, should be received before the academic year of intended entry, preferably by August 15.

6.3 Admission to Honours: B.A. (Hons.), B.Com., B.J., B.Mus., B.P.A.

Students may apply for Honours at any time after having completed the introductory course in the discipline. They should consult the Honours adviser of the department before making application.

Application for Honours may be made at registration or, during the remainder of the year, through the Faculty Registrar's Office. Applications which involve a change of degree (eg. B.A. to B.J.) must be made on a Degree Transfer form and are subject to deadlines as set out on p. 92.

For entry into Honours, a student must have a grade-point average of 6.0 or better in the Honours subject and 4.0 or better overall and the recommendation of the Honours department or departments.

6.4 Continuation in Honours

For continuation in Honours a student must maintain a grade-point average of 6.0 or better in the Honours subject or subjects and 4.0 or better overall. Graduation requirements as in 7.4 must, however, be met.

At the beginning of their last five credits, students in Honours must have a grade of C- or better in at least half of the courses to be credited towards the degree.

Students who fail to maintain Honours standing must withdraw from the Honours program. They may apply for admission to a Major program. Students in this situation are advised to contact a counsellor in the Faculty Registrar's Office.

Registration and Re-registration

The following table sets out a typical registration, re-registration schedule for a student registering in a thesis for the first time in September 1982. Please note that fees may change, and that there is a late fee payment assessed during the late registration period. (For information about fees, see p. 48.)

Registration	Deadline*	Fee	Deadline for Submission of Completed	Grade if not Complete	Deadline for Withdrawal from Thesis*
Initial Registration	Last day for late registration (Sept.)	fee per credit	June 1 (April 1 for Spring graduation)	IP	Last day for withdrawal from full courses (Feb.)
First Re-registration**	Last day for late registration for Summer session Day division (July)	fee per half credit	Sept. 15	IP	Last day for withdrawal from Summer session Day division full courses
Second Re-registration	Last day for late registration (Sept.)	fee per half credit	April 1	F	Last day for withdrawal from full courses (Feb.)

* Consult "The Academic Year" applicable to each year, for precise dates (see pp. 11-13).

**Optional — see below

The First re-registration is optional. Students should note, however, that they are not eligible for supervision or library privileges, may not submit a thesis for grading, and may not graduate in the Fall convocation, if they are not registered.

The Second re-registration is compulsory for students whose theses are still outstanding at the beginning of the third session. To avoid such re-registration students must either:

(a) withdraw from the Honours program, notifying the Registrar's Office of their intention, in writing, no later than the last date for late registration.

(b) notify the Registrar's Office of intention to complete the Honours program by means of appropriate alternative courses approved by the Honours supervisor.

6.5 The Honours Thesis or Research Essay General

Although the scope of the Honours Research Essay or Thesis should not exceed what the student can reasonably expect to complete within an academic session, up to two re-registrations are permitted. If the thesis is not completed within three consecutive sessions, a grade of F will be assigned. (Students who first register in September must submit the finished thesis by April 1 of the following Fall/Winter session.)

Withdrawal

Students may withdraw from the Honours thesis up to the last date for withdrawal from full courses in the session. Students who withdraw during their first session of registration will retain Honours status. Students who withdraw from a re-registration will forfeit Honours status, unless they simultaneously transfer to another course or courses which meet Honours requirements. Students who withdraw from the Honours program will automatically be withdrawn from the Honours Thesis.

Reinstatement

Students who forfeit Honours status, either by withdrawing from the thesis or by obtaining an F grade for non-completion, may apply for reinstatement in the

Honours program. The department may require such students to begin a new project. Following reinstatement, students will normally commence a new registration cycle of three consecutive sessions unless a shorter period is specified by the department. Reinstated students will pay a full registration fee.

In the academic year immediately following the one in which Honours status was forfeited, students will apply through the Faculty Registrar's Office. Subsequently, they will apply through the Admissions Office.

7. Graduation

7.1 Application to Graduate

Students expecting to graduate in the Spring must make application on the form available in the Faculty Registrar's Office by February 1; those expecting to graduate in the Fall, by September 1; and those expecting to graduate in February, by December 1.

7.2 Graduation Requirements: B.A. (Major and Interdisciplinary)

Candidates must meet the following requirements:

- (a) fifteen credits beyond Qualifying University year;
- (b) a minimum of eight credits at the 200 level or higher;
- (c) requirements of Major program; or as set by the Directed Interdisciplinary Studies Committee;
- (d) a minimum grade of C- in half the courses presented (not including Qualifying University year);
- (e) a minimum average of C- in the Major field or, in the case of Combined Majors, in each Major field; or, in the case of the Directed Interdisciplinary Studies B.A., an overall average of C- in all courses presented for the degree.
- (f) Failing grades (*F*, *FNS*, *ABS*), grade-raising examinations and repeated courses equivalent to no more than five credits after promotion to the course credit system. (A failed full-credit course followed by a failed supplemental count as two discredits.)

Note:

In calculating the average in the Major some departments count all courses taken in the Major field while others count only the courses required. Students who have any questions about the calculation of their graduation average are advised to consult with a counsellor.

7.3 Distinction

Subject to changes in regulations, students in a three-year program will be designated as graduating "with distinction" if:

- (a) they have successfully completed the fifteen credits required for the degree without a failure, supplemental, repetition or replacement; and
- (b) the ten credits taken beyond the First-year requirement were taken at Carleton and the grade-point total was at least ninety.

7.4 Graduation Requirements: B.A. (Honours), B.J., B.Com., B.Mus., B.P.A.

Candidates must meet the following requirements:

- (a) twenty credits beyond Qualifying University year as set out in departmental regulations (twenty-one credits for journalism);
- (b) a minimum of eleven credits at the 200 level or higher (thirteen for Commerce);
- (c) requirements of the Honours program;
- (d) a minimum of C- in half the courses presented for the degree;
- (e) For students who entered Honours for the session beginning in September, 1980, a minimum grade-point average of 6.5 in each Honours field and 5.0 overall. For students in Honours prior to that session, 6.0 and 4.0, except in the B.Com.
- (f) Failing grades (*F*, *FNS*, *ABS*), grade-raising examinations, and repeated courses equivalent to no more than three credits after promotion to the course credit system. (A failed full-credit course followed by a failed supplemental count as two discredits.)

Note:

In calculating the average in the Honours discipline some departments include all courses in that discipline while others include only the courses required in the program. Students who have any questions about the calculation of their graduation average are advised to consult with a counsellor. Courses taken in Qualifying University year are not included in graduation requirements except where they include a course required by the program.

7.5 Classes of Honours

For students who entered Honours for the session beginning September, 1980, three classes of honours degrees are awarded according to grade-point averages attained:

- (a) Highest Honours: 10.0 in the Honours subject and 8.0 overall.
- (b) High Honours: 9.0 in the Honours subject and 7.0 overall.
- (c) Honours: 6.5 in the Honours subject and 5.0 overall.

Departments may recommend the next higher class of Honours degree when a student has one average in the appropriate higher range and the other within 0.2 grade points of the higher range.

To determine the class of Honours degree for students in Combined Honours programs the average is taken in each of the two subjects, and the simple average of the two is used.

Students who entered Honours for sessions prior to September, 1980, are awarded four classes of Honours as follows:

First Class

(a) For students admitted to Honours prior to March 1, 1977: 9.0 or better in the Honours subject and 6.0 or better overall.

(b) For students admitted to Honours after February 28, 1977: 9.0 or better in the Honours subject and 7.0 or better overall.

High Second Class

(a) For students admitted to Honours prior to March 1, 1977: 8.0 or better in the Honours subject and 5.0 or better overall.

(b) For students admitted to Honours after February 28, 1977: 8.0 or better in the Honours subject and 6.0 or better overall.

Second Class

6.0 or better in the Honours subject and 4.0 or better overall.

Third Class

(a) For students admitted to Honours prior to September 6, 1977: 4.0 or better in the Honours subject and 3.6 or better overall.

(b) Students admitted to Honours after September 5, 1977 are not eligible for Third Class Honours, except in the B.Com. program.

8. The Qualifying University Year and First Year Curriculum

8.1 Qualifying University Year

Students in Qualifying University year must present five credits, which must include two of:

- (a) a 100-level course in English;
- (b) Mathematics 69.006★ and 69.007★;
- (c) a language other than English.

The remaining credits are to be selected according to 8.3 below. Students planning to apply for admission to the B.J. program must take a modern language course. Those planning to apply for the B.Mus. program should discuss the choice of a music course with the Chairman of the Music Department. Qualifying University year students should be aware of the provisions for Accelerated Progress (see 4.8).

8.2 First Year

First-year students must present five credits selected according to 8.3 below. Students in the B.Com., B.J., B.Mus. and B.P.A. programs must meet the First-year prescriptions of their programs. First year B.A. students are encouraged to select courses which will acquaint them with the range of studies across the social sciences, arts, and languages. Students should include in their First-year registration any course which is required for their prospective Major or Honours concentration, and should be aware that many upper-year courses stipulate prerequisites.

8.3 Course Selection

Students in Qualifying University and First year must attend the Summer Advisory Service, which provides full information on course selection. The Service operates through July and August and through registration, by appointment with the Faculty Registrar's Office.

Subject to the provisions of 8.1 and 8.2 and placement requirements, Qualifying University and First year students can choose 100-level courses from all departments in arts, social sciences, and science. In addition, the following departments will allow First year students to take certain courses numbered 200 and above: art history, classics (Greek, Latin), computer science, English, French, geography, geology, German, history, Italian, music, philosophy, religion, Russian, and Spanish. Complete information is available in publications of the Summer Advisory Service.

While the University makes every effort to allow students to enrol in programs of their choice, enrolments may have to be limited in certain of the more popular courses.

Accounting

For description of Accounting courses offered, see
School of Business, pp. 109-118.

Anthropology

Department of Sociology and Anthropology

See Department of Sociology and Anthropology, p. 271, for all details.

Department of Art History

Officers of Instruction

Chairman and Supervisor of Majors
Marilyn Marshall

Supervisor of Honours
David Goodreau

Associate Professors
Clifford M. Brown
David Goodreau
Francisco Hernandez
Diane le Berrurier

Assistant Professors
Terry Guernsey

Adjunct Professors
George Swinton
Mary Cazort, *National Gallery of Canada*

Lecturer
Roger Mesley

Slide Curator
Barbara Stevenson

Assistant Slide Curator
Kathleen Wootton

General Information

The Department's offerings range from beginning survey courses to advanced courses leading to the Bachelor of Arts Major and Honours degrees. A Master of Arts program with a specialization in art history is offered through the Institute of Canadian Studies.

Courses Open to First Year Students

The following courses are open to First-year students: Art History 11.103★, 11.104★, 11.110★, 11.111★, 11.115★, 11.200★, 11.201★, 11.210★, 11.220★, 11.230★, 11.235★, 11.240★, 11.250★, 11.260★.

Major Programs

Major in Art History

The Major in Art History consists of a minimum of six credits in art history, comprising five credits beyond the 100 level, to include:

- (a) one credit at the 100 level;
- (b) two credits at the 200 level;
- (c) two credits at the 300 and 400 level;
- (d) one additional credit beyond the 100 level.

Courses at the 400 level, excluding Art History 11.475★, 11.476★, 11.490★, 11.491★ and 11.499, may be taken by students in their Third year who have the appropriate course prerequisite or permission of the department. It is recommended that majors in art history have the equivalent of at least a First-year course in a language suitable to their program. French 20.102, 20.103, 20.106★ or 20.108, German 22.115, Italian 26.115, and Spanish 38.115 are recommended.

Combined Majors

Major students combining art history with another subject must include five credits in art history, of which one must be at the 300 level.

Honours Programs

Honours in Art History

The Honours program in Art History consists of a minimum of ten credits in art history, including nine beyond the 100 level.

1. For the First, Second and Third year programs refer above to the course pattern outlined in the section *Major in Art History*.

2. Honours students must take four credits in art history at the 400 level, including Art History 11.490★ and 11.491★, or 11.499.

3. Students will be required to demonstrate a proficient reading knowledge of either French, German, Italian, or another language if relevant to their program. A grade of B- or higher in French 20.102, 20.103, 20.106★, 20.108, German 22.115, Italian 26.115, or Spanish 38.115 will be accepted in lieu of a reading examination. If graduate study in art history is contemplated, the study of French and German is strongly recommended.

4. Courses must be chosen in consultation with the Honours Supervisor.

Combined Honours

For Honours programs combining art history with another subject, the minimum requirement is seven credits in art history chosen in consultation with the department, which must include two art history credits at the 400 level.

Students who wish to pursue programs in museum training on the postgraduate level are advised that courses in general chemistry are strongly recommended.

Courses Offered

Art History 11.103★

Arts of the Native Peoples: The Americas

This course is designed as an introduction to the arts and architecture of the indigenous civilizations in Mexico, Central America, and the Andean region of South America before the Spanish conquest, and of the traditional art forms of the Indian and Inuit peoples of North America.

Day division, First term: Lectures three hours a week.
R. Phillips

Art History 11.104★

Arts of Native Peoples: Africa and Oceania

This course is designed as an introduction to the art forms of the native peoples of tropical Africa, Australia, New Zealand, and the tropical islands of the Pacific.

Evening division, Second term: Lectures three hours a week.
R. Phillips

Art History 11.110★

Western Art: Prehistory to Medieval

This course surveys the art and architecture of the western world from the Paleolithic era to the end of the Gothic period.

Day division, First term: Lectures three hours a week.
D. le Berrurier

Art History 11.111★

Western Art: Renaissance to the Present

This course surveys the art and architecture of the western world from the beginning of the Renaissance to the present day.

Evening division, First term; *L. Street*. Evening division, Second term: *D. Goodreau*, Lectures three hours a week.

Art History 11.115★

Art as Visual Communication

This course examines the roles of art in communication and visual thinking. The purpose of the course is to focus on the non-verbal communication of ideas, and to raise and broaden the individual's awareness of art and various visual media. The course explores themes such as what constitutes quality in art, can an interface exist between art and the popular visual media, and how the ideas of the artist are conveyed by means of a physical artifact. Topics include visual and tactile elements in art, design as visual organization and composition, levels of meaning in subject matter, materials and techniques of historical and contemporary visual expressions, problems of objectivity and subjectivity in visual experience, and aesthetic theories of value judgment.

Day division, Second term: Lectures three hours a week.

R. Mesley

Art History 11.200★

Canadian and American Art to 1900

This course surveys art and architecture in North America from the beginning of the European settlement to about 1900.

Day division, First term: Lectures three hours a week.
T. Guernsey

Art History 11.201★

Canadian and American Art: The Twentieth Century

This course surveys art and architecture in North America from about 1900 to the present day.

Day division, Second term: Lectures three hours a week.
T. Guernsey

Art History 11.210★

Greek and Roman Art and Archaeology

Offered in the Department of Classics as Classical Civilization 13.232★.

Day division, First term.

Art History 11.220★

Western Medieval Art

The development of Western medieval art from the earliest Christian productions through the late Gothic period is studied, with some reference to Eastern medieval art for purposes of comparison.

Evening division, Second term: Lectures three hours a week.
D. le Berrurier

Art History 11.230★

Italian Renaissance Art

This course is designed to survey painting, sculpture and architecture in Italy from the fourteenth through the sixteenth century.

Day division, First term: Lectures three hours a week.
C. Brown

Art History 11.235★

Northern Renaissance Art

This course examines the development of Flemish and German Renaissance art.

Not offered 1982-83.

Art History 11.240★

Baroque and Early Romantic Art

This course is designed to survey painting, sculpture and architecture in Europe from the Baroque period of the seventeenth century through the Rococo and the beginnings of Romantic art in the eighteenth century.

Day division, First term: Lectures three hours a week.
D. Goodreau

Art History 11.250★

Romantic and Early Modern Art

This course surveys painting and sculpture in Europe from the Romantic period, through Impressionism to the beginnings of abstract art.

Not offered 1982-83.

Art History 11.260★

Modern Art

This course surveys the major artistic groups and personalities working in Europe and North America from the beginnings of abstract art to the present.

Evening division, Second term: Lectures three hours a week.

R. Mesley

Art History 11.286★

Art and Ideas: From Ancient Greece to the Twentieth Century

A survey of theories that have shaped the western approach to art and art criticism, including Plato, Aquinas, Kant, Hegel, Nietzsche and Collingwood.

Day division, First term: Lectures three hours a week.

J. Thompson

Art History 11.287★

Art and Ideas: the Twentieth Century

A survey of theories that have shaped the western approach to art and art criticism including psychological, sociological, phenomenological, semiotic and aesthetic approaches and including such thinkers as Freud, Arnheim, Marx, Heidegger, Barthes and Bell.

Day division, Second term: Lectures three hours a week.

J. Thompson

Art History 11.300★

Canadian Painting

This course, designed to study particular aspects of painting in Canada, emphasizes artists working in the nineteenth and early twentieth centuries.

Day division, First term: Lectures three hours a week.

L. Street

Art History 11.301★

Topics in Contemporary Canadian Art

This course examines in depth the art of selected groups and individuals working in Canada from the Second World War to the present.

Day division, Second term: Lectures three hours a week.

T. Guernsey

Art History 11.302★

Canadian Architecture

This course is designed to study the cultural history of Canada as expressed through its architectural heritage. Selected buildings and complexes from the earliest settlements through the early twentieth century within the French and English Canadian architectural traditions are examined.

Evening division, Second term: Lectures three hours a week.

T. Guernsey

Art History 11.303★

Prehistoric Art of the Canadian Arctic

This course studies the art of the Canadian Arctic during the past 3,000 years, and examines and compares archaeological data and regional art forms.

Not offered 1982-83.

Art History 11.304★

Pre-Classical Greek Art and Archaeology

Offered in the Department of Classics as Classical Civilization 13.331★.

Day division, Second term.

Art History 11.305★

American Architecture

This course studies the cultural history of the United States as expressed through its architectural heritage. Selected buildings and complexes from the earliest settlements through the early twentieth century are examined.

Evening division, First term: Lectures three hours a week.

D. Goodreau

Art History 11.306★

American Art

This course studies the evolution of painting and sculpture in the United States from colonial times to the early twentieth century.

Day division, Second term: Lectures three hours a week.

D. Goodreau

Art History 11.310★

Etruscan and Roman Art

This course studies Etruscan art and the development of Roman art and architecture through the Constantinian period. (Also listed as Classical Civilization 13.334★.)

Not offered 1982-83.

Art History 11.320★

Byzantine Art

This course examines the sources and the development of the arts in the Byzantine Empire as well as the influence of these artistic productions on those of neighbouring countries and Western Europe.

Evening division, First term: Lectures three hours a week.

D. le Berrurier

Art History 11.325★

Russian Art

The development of Russian art is studied from its origins through the seventeenth century with an emphasis on Byzantine influences as opposed to local characteristics.

Evening division, Second term: Lectures three hours a week.

D. le Berrurier

Art History 11.327★

Gothic Art

The development of Gothic architecture and monumental sculpture in Northern and Southern Europe from its origins in the twelfth century through the fifteenth century will be investigated.

Day division, Second term: Lectures three hours a week.

D. le Berrurier

Art History 11.330★

Florentine Renaissance Art

This course examines Florentine art in its development from late Trecento ideas to the emergence of the High Renaissance vocabulary.

Not offered 1982-83.

Art History 11.331★

Venetian Renaissance Art

This course examines the art of the Venetian Republic, from the Basilica of San Marco to the emergence of a Renaissance vocabulary with Bellini, Giorgione, Titian, Veronese and Tintoretto, within the context of North Italian painting.

Not offered 1982-83.

Art History 11.332★

Italian Art of the High Renaissance

This course examines the art of the principal representatives of the high Renaissance including Leonardo da Vinci, Michelangelo, Raphael, Titian and the Florentine circle of Andrea del Sarto.

Evening division, First term: Lectures three hours a week.

C. Brown

Art History 11.350★

British Art and Architecture

Art and architecture in Britain from the early sixteenth to the mid-nineteenth century are studied.

Day division, First term: Lectures three hours a week.

D. Goodreau

Art History 11.355★

Late Nineteenth-Century Art in France

This course defines the roots of the major modern movements of early twentieth-century art through an examination of the principal artists and trends in French painting from Manet to Cézanne. Special attention is also given to the major Impressionist and Post-Impressionist artists including Monet, Renoir, Seurat, van Gogh and Gauguin.

Evening division, First term: Lectures three hours a week.

R. Mesley

Art History 11.360★

Twentieth-Century Art: Selected Topics

This course examines in depth the art and ideas of selected groups of artists working in Europe and the United States during the twentieth century.

Not offered 1982-83.

Art History 11.368★

Modern Architecture: The Nineteenth Century

This course covers selected topics in nineteenth-century architecture and urban planning in Europe and North America from the Gothic Revival to American commercial architecture.

Not offered 1982-83.

Art History 11.369★

Modern Architecture: The Twentieth Century

This course considers The Bauhaus and the New Brutalism, and also includes such architects as Gaudi, Wright, Le Corbusier, Mies van der Rohe and Buckminster Fuller.

Not offered 1982-83.

Art History 11.375★

Seminar on a Selected Museum Exhibition

This seminar focuses on a major exhibition held at a local museum. Students enrolled in this course are expected to bear all travel and other costs arising from required visits to the museum. The topic of this course will be announced well in advance of the period of registration.

Day division, First term: Lectures three hours a week.

T. Guernsey

Art History 11.376★

Seminar on a Selected Museum Exhibition

This seminar focuses on a major exhibition held at a local museum. Students enrolled in this course are expected to bear all travel and other costs arising from required visits to the museum. The topic of this course will be announced well in advance of the period of registration.

Day division, Second term: Lectures three hours a week.

R. Phillips

Art History 11.400★

Canadian Artists and Architects

This seminar examines in detail the contributions of selected individuals or movements in Canadian art and architecture in the context of Canadian society and in the context of the history of modern art. For the focus of the course in the current year, please consult the department.

Prerequisite: Art History 11.300★ or permission of the department.

Day division, First term: Seminar two hours a week.

T. Guernsey

Art History 11.403★

Contemporary Inuit Art in the Context of Art History

This course investigates the development of Inuit art since the beginning of the nineteenth century, with emphasis given to regional and local stylistic characteristics and the works of individual artists.

Evening division, First term: Seminar two hours a week.

G. Swinton

Art History 11.420★

Early Christian and Byzantine Manuscript Illustration

This seminar studies the origins of the codex illustrations and concentrates on the development of religious and secular manuscripts from the fourth century through the fifteenth century.

Prerequisite: Art History 11.320★ or permission of the department.

Day division, First term: Seminar two hours a week.
D. le Berrurier

Art History 11.421★

Early Medieval and Byzantine Ivories

This course focuses on the origins of the ivory carving tradition and the various types of secular and religious productions from the earliest examples through the tenth century in Western medieval art and through the fifteenth century in Byzantine art.

Prerequisite: Art History 11.320★ or permission of the department.

Not offered 1982-83.

Art History 11.425★

Byzantine and Russian Icon Painting

This seminar course focuses on the origins and development of Byzantine and Russian Icon painting through the sixteenth century.

Prerequisite: Art History 11.320★ or 11.325★ or permission of the department.

Not offered 1982-83.

Art History 11.450★

British Landscape Painting

This seminar examines the rise and development of the British school of landscape painting in the eighteenth and nineteenth centuries. Study also includes varieties of media and techniques, and although the main focus is on British landscape art, North American and European examples are introduced for comparative purposes.

Prerequisite: Art History 11.350★ or permission of the department.

Not offered 1982-83.

Art History 11.452★

Goya: Painter and Printmaker

This course examines the style and imagery of Goya's paintings and graphics, as well as the range of attitudes and opinions that critics and art historians have held about Goya's work.

Prerequisite: Art History 11.240★ or 11.250★ or permission of the department.

Day division, Second term: Seminar two hours a week.
D. Goodreau

Art History 11.460★

Twentieth-Century Art Theory and Criticism

In this course the place of the critic and of the artist as theorist is examined in relation to the painting and sculpture of the twentieth century.

Prerequisite: Art History 11.260★, or 11.360★ or permission of the department.

Not offered 1982-83.

Art History 11.465★

Paul Klee and German Expressionism

The art and ideas of Paul Klee are discussed within the context of the German Expressionist movement.

Prerequisite: Art History 11.260★, or 11.360★ or permission of the department.

Not offered 1982-83.

Art History 11.470★

Historical Studies in Drawing

The history of the drawing as a work of art from the fifteenth century to the present is studied in this seminar, using in large part original examples from the National Gallery of Canada. Emphasis is placed on the expressive possibilities of the various media and on connoisseurship. Enrolment limited.

Prerequisite: Permission of the department.

Not offered 1982-83.

Art History 11.475★

Seminar on a Selected Museum Exhibition

This seminar focuses on a major exhibition held at a local museum. Students enrolled in this course are expected to bear all travel and other costs arising from required visits to the museum. The topic of this course will be announced well in advance of the period of registration.

Prerequisite: Fourth-year Honours standing.

Day division, First term.

T. Guernsey

Art History 11.476★

Seminar on a Selected Museum Exhibition

This seminar focuses on a major exhibition held at a local museum. Students enrolled in this course are expected to bear all travel and other costs arising from required visits to the museum. The topic of this course will be announced well in advance of the period of registration.

Prerequisite: Fourth-year Honours standing.

Day division, Second term.

R. Phillips

Art History 11.480★

Secular Iconography: Pagan Themes in Western Art

This course analyses and categorizes the various ways in which Greco-Roman themes were used in Medieval, Renaissance and Baroque art.

Prerequisite: Permission of the department.

Not offered 1982-83.

Art History 11.485★

Religious Iconography: Biblical Themes in Western Art

This course explores the textual and the visual traditions underlying selected Old and New Testament themes in Medieval, Renaissance and Baroque art. (Also listed as Religion 34.481★.)

Day division, First term: Seminar three hours a week.

C. Brown

Art History 11.487★

Theory of Art Criticism

This course analyses types of approach to art criticism. Topics include the problem of descriptive vocabulary with particular reference to 'form' and 'unity' and related terms, the basis for evaluation, and meaning and knowledge in art. Theories such as formalism and expressionism are examined.

Day division, Second term: Seminar two hours a week.

J. Thompson

Art History 11.490★

Directed Readings and Research

This course consists of supervised readings and research projects in a specific area of art history to be chosen in consultation with the Honours Supervisor. Participation in this course may require attendance in a course offered at a lower level.

Prerequisite: Fourth-year Honours standing and permission of the department.

Day and Evening divisions, First term.

Members of the department

Art History 11.491★

Directed Readings and Research

This course consists of supervised readings and research projects in a specific area of art history to be chosen in consultation with the Honours Supervisor. Participation in this course may require attendance in a course offered at a lower level.

Prerequisite: Fourth-year Honours standing and permission of the department.

Day and Evening divisions, Second term.

Members of the department

Art History 11.499

Honours Research Essay

This course, designed for independent research under the supervision of a member of the department, is open to those students with B+ standing in their art history courses. An essay of approximately 10,000 words is the usual assignment. A written project outline, approved by the supervisor, must be submitted to the Honours Supervisor by the last day for course changes.

Prerequisite: Fourth-year Honours standing and permission of the department.

Day and Evening divisions.

Members of the department

Biology

Associate Chairman (Undergraduate Studies)
D.R. Gardner

General Information

In addition to offering Honours and Major B.Sc. programs for students in experimental science, the Biology Department (Faculty of Science) offers Honours and Major B.A. degrees either in biology alone or combined with other programs in the Faculties of Arts and Social Sciences. The B.A. in biology places less emphasis on support from the physical sciences, but allows students to relate their special knowledge of biology to other disciplines in the social sciences or humanities in a three-year program. The four-year Honours program allows the development of particular interests in depth and initiates the student into research in the field, laboratory or library. Generally the Honours degree is a prerequisite for admission to graduate programs and is an advantage for those planning a professional career in teaching or administration in biology, including the health sciences, agriculture and environmental science.

The Combined Honours and Majors programs allow the simultaneous specialization in biology and one of the humanities or social sciences. Because of the social and cultural impact of science and technology, interdisciplinary combinations such as biology and economics, geography, history, journalism, law, mathematics, philosophy, political science, psychology, religion or sociology-anthropology should better qualify one to grapple with futurology and demography, biogeography and the environment, legal implications of pollution or biomedical engineering, science policy, comparative psychology, social evolution, or the historical, philosophical and spiritual implications of the biological revolution.

It is desirable to enter an Honours program as soon after First year as possible to ensure that the sequence of selected courses will conform to degree requirements (p. 96). Students pursuing the programs must arrange their courses in consultation with the Chairman or Associate Chairman of the department or departments according to one of the patterns outlined below.

Bachelor of Arts Major Program in Biology

Fifteen full-course credits to include:

1. Six biology credits to include Biology 61.100† or 61.101†, 61.201★, 61.202★, 61.215, 61.220★, 61.261★, 61.361★, 61.391★;
2. Chemistry 65.100;
3. One additional science credit not in biology;
4. At least three credits from any one department in either the Faculties of Arts or Social Sciences and one additional credit from any department in either of the Faculties of Arts or Social Sciences;
5. Three free options, one of which must be at the 200 level or above.

Bachelor of Arts Combined Major Program in Biology

Fifteen full-course credits to include:

1. Five biology credits: Biology 61.100† or 61.101†, 61.201★, 61.202★, 61.215, 61.220★, 61.261★, 61.361★, 61.391★;
2. Chemistry 65.100;
3. One additional science credit not in biology;
4. The requirement for a Combined Major in either of the Faculties of Arts or Social Sciences;
5. Three or four free options.

†See *Notes on Programs*, p. 376.

For complete information on programs and courses offered by the Department of Biology see pp. 374-381.

Bachelor of Arts Honours Program in Biology

Twenty full-course credits to include:

1. Seven biology credits including Biology 61.100† or 61.101†, 61.201★, 61.202★, 61.215, 61.220★, 61.261★, 61.361★, 61.391★, 61.497, or 61.498, and one other 400-level credit;
2. Chemistry 65.100;
3. Two additional science credits not in biology, including one above the 100 level;
4. Six credits offered by either Faculties of Arts or Social Sciences to include at least three offered by one department and at least two at the 200 level or above;
5. Two 300 or 400-level credits approved by a biology faculty member working in the student's area of specialization;
6. Two free options.

†See *Notes on Programs*, p. 376.

Bachelor of Arts Combined Honours Program in Biology

Twenty full-course credits to include:

1. Six biology credits including Biology 61.100† or 61.101†, 61.201★, 61.202★, 61.215, 61.220★, 61.261★, 61.361★, 61.391★ and one at the 400 level;
2. Chemistry 65.100;
3. Two additional science credits not in biology, including one above the 100 level;
4. Seven to nine credits selected from those offered by the Faculties of Arts or Social Sciences, to include the requirement for a Combined Honours in another department, usually at least six credits;
5. An Honours project (Biology 61.497, 61.498, or equivalent from the student's other Honours department);
6. One to three free options (depending upon the requirements for 4 (above)).

†See *Notes on Programs* p. 376.

Officers of the School

Director

A.J. Bailetti

Assistant to the Director

L.Y. Fallis

Co-ordinators

C.D. Acland (*Accounting*)

W.M. Lawson (*Finance, Human Resources, Business Systems and Marketing*)

Associate Professors

C.D. Acland

R.L. Beshara

J.C. Bourgeois

J.R. Callahan

R. Caterina

W.M. Lawson

J.B. Waugh

W.L. Weber

Visiting Associate Professor

R. Corbin

Assistant Professors

A.J. Bailetti

S.R. Luce

N.G. Papadopoulos

A.L. Riding

D.A. Thomas

Lecturer

P.D. Clark

Special Lecturers

D. Cluff

R.K. Webster

Sessional Lecturers

L. Anderson

C. Byrd

A. Clarke-Okah

M. Clegg

G. Dupont

N. Fletcher

J. Flynn

J. Freamo

B. Gilhooly

D. Herauf

D. McLarty

P. Murray

J. Nason

I. Neville

K. Ng

J. Prokaska

M. Reynolds

T. Rochefort

J. Rooney

J. St. Laurent

F. Sum

W. Thurlow

M. Tweedie

J. Wyllie

Committee of Management

C.D. Acland

A.J. Bailetti

R.L. Beshara

J.C. Bourgeois

J.R. Callahan

R. Caterina

P.D. Clark

D.P. Forcese (*Dean, Faculty of Social Sciences*)

W.M. Lawson

S.R. Luce

M. Mac Neil (*Law*)

A.M. Maslove (*Public Administration*)

A.L. Riding

T.K. Rymes

D.A. Thomas

J.B. Waugh

W.L. Weber

K.A. Milloy (*Student Representative*)

Bachelor of Commerce with Honours

The Bachelor of Commerce degree is an Honours program and candidates are required to complete a four year course of studies after Senior Matriculation.

The business program is designed to provide a broad foundation in the academic disciplines underlying business and economic affairs. The required courses introduce the student to the relevant academic disciplines and to the functional areas of management. All students, in consultation with the faculty of the school, may structure the balance of their program to build upon this foundation in accordance with their personal career objectives and areas of interest. Suggested options for selected areas of interest are listed below. (See *Fields of Interest*.)

The program is offered chiefly in the Day division; most course offerings are also available in the Evening division. Each student, however, must spend a minimum of one year as a full-time student in the Day division.

Students who intend to proceed to a professional accounting qualification as a Chartered Accountant (C.A.), Certified General Accountant (C.G.A.), or Registered Industrial Accountant (R.I.A.), should consult with one of the faculty members in Accounting.

Students who may wish to proceed to a Master's Degree in Public Administration at Carleton University are recommended to discuss their optional courses with the Director of the School of Public Administration.

Admission Requirements

First Year

1. Completion of Qualifying University year with a grade-point average of 5.0 or better including Mathematics 69.006★ and 69.007★; or
2. The Ontario Secondary School Honour Graduation Diploma with a minimum of 65% average and including Functions and Calculus.
3. Students who fail to meet the standards required for entry to the Honours program may elect to take their First year in the three-year Bachelor of Arts program. This First-year program should include Accounting 41.101★, 41.102★, Economics 43.100 and Mathematics 69.107★ and 69.127★. Application may then be made for admission to the Second year of the business program. The requirements for admission to Honours will apply. (See page 96.)

Note:

Students who are required to register in the pre-calculus course, Mathematics 69.106★ (see Placement in First-year Mathematics courses, p. 402) will be admitted to the business program, but will not receive credit for Mathematics 69.106★ as a degree credit course.

Second and Subsequent Years

Applications for admission to the Second or subsequent years will be assessed on their merits. Minimum transfer requirements are stated on p. 96. Advanced standing will be granted only for those subjects which are assessed as appropriate for the business program.

Selective Admission

It should be noted that the number of student spaces in the school is limited. Because of this it is expected that it may not be possible to grant admission to all applicants who meet the foregoing requirements. Admission will, therefore, be on a selective basis with preference given to those candidates who show the highest promise of success in the program.

Course Requirements

Candidates for the Bachelor of Commerce degree take a total of 25 courses after Junior Matriculation or 20 after Senior Matriculation. Students with a prior university degree will receive advanced standing where appropriate. Acceptance in the program will be governed by the standards required for entry to the Honours program, however, and a minimum of seven additional courses will be required, following admission to the program, for the Bachelor of Commerce degree. Students who propose to include language courses in their program must obtain prior approval from the school.

Academic Standing

In addition to the C- requirement in First-year Economics, students entering the Second year of the program must present a minimum grade of C- in one of the required First-year courses, Mathematics or Accounting.

Entry to Fourth-year courses offered in Accounting and Management Studies will be governed by academic performance in prerequisite courses. The minimum acceptable grade for entry into such courses is a grade of C- in the designated prerequisites.

The attention of students is drawn to the regulations relating to Honours on pp. 96-98 of the Calendar. In addition to the graduation regulations listed on p. 98 candidates for graduation in business must present a minimum overall grade-point average of 4.0 in their graduating year.

In calculating grade-point averages for the class of Honours, the average will be taken of all required courses.

Course Load

The normal course load for a full-time undergraduate during the Winter session is five full courses. In the business program slightly more than half of these courses are obligatory. Subject to program approval the remaining courses may be selected in the light of individual preference.

Course Selection

Required Courses

Under the course credit system there is no promotion from one year to the next. The required course listings for Second year and subsequent years, then, reflect a recommended sequence of courses pattern; individual students may wish to adapt the timing of individual course selection to meet their own particular needs or preferences.

First Year

Accounting 41.100;
Economics 43.100;
Mathematics 69.107★, and 69.127★ or 69.117★;
Psychology 49.100 or Sociology 53.100;
Management Studies 42.110★ and 42.111★.

Second Year

Computer Science 95.101★, 95.104★ or 95.105★;
Economics 43.202★ and 43.203★;
Economics 43.220;
Management Studies 42.208★;
Management Studies 42.210★;

Management Studies 42.250★;
 Management Studies 42.290★ or 42.291★;
 Management Studies 42.357★.

Third Year

Economics 43.212★ and 43.213★.

Fourth Year

Three approved 400-level course credits, including
 Management Studies 42.490★.

Courses Offered

Courses offered by the School of Business are listed,
 immediately following this section.

Suggested Options for Selected Fields of Interest

The following table sets out a listing of suggested options by area of interest. Primary-interest courses are designated by an X; courses of secondary or general interest by an O. The courses listed are intended to provide a general guideline only; consultation with members of the faculty is recommended.

Possible Special Interest Streams in Business

1. Accounting
2. Finance
3. Human Resources
4. Information Systems and Operations Management
5. Marketing

X — of primary interest

O — of interest

Course	Special Interest Stream				
	1	2	3	4	5
41.200 Intermediate Accounting	X	O		O	
41.301★ Accounting for Business Combinations	X				
41.306★ Financial Reporting Problems	X	O			
41.325★ Cost Accounting	X	O		X	
41.326★ Management Accounting Systems	X	O		X	
41.400★ Accounting Theory	X				
41.401★ Research Topics in Accounting	O				
41.412★ Auditing	X			O	
42.290★ An Introduction to Business Information Systems	X		O	X	O
42.291★ Quantitative Applications of Computers in Business	O	X	O	X	X
42.307★ Production				O	
42.311★ Micro-Organizational Behaviour			X		
42.312★ Personnel Management			X		
42.315★ Marketing Communications					X
42.350★ Corporate Finance	O	X			
42.351★ Principles of Investments	O	X			
42.391★ Business Data Processing Systems	O			X	
42.404★ Operations Research I	O	X		O	O
42.405★ Operations Research II	O	O		O	O
42.408★ Advanced Corporate Finance	O	X			

Course	Special Interest Stream				
	1	2	3	4	5
42.409 Statistical Decision Theory	O	O		O	O
42.410★ Finance and Capital Markets	O	X			
42.411★ Investment Management	O	X			
42.415★ International Marketing	O	O			X
42.416 Consumer Behaviour					X
42.417★ Marketing Research				O	X
42.418★ Marketing Management					X
42.480★ Applied Organization Theory			X		
24.335★ Canadian Labour Movements since Confederation			X		
28.210 The Mass Media in Modern Society			O		O
32.109★ The Philosophy of Economic Activity			X		
32.284★ Society, Value and Technology			X		
43.335 Political Economy in the Modern State			O		
43.356★ Introduction to Labour Economics			X		
43.360★ Topics in International Economics					O
43.361★ Introduction to International Trade					O
43.362★ International Monetary Problems		O			
43.380★ Topics in Canadian Economic Policy			O		
43.420★ Microeconomic Theory		O			
43.430 Industrial Organization and Public Policy			O		
43.435 Manpower Economics and Labour Policy			X		
43.465 Industrial Relations	O		X		
43.485 Introduction to Econometrics		O			
47.403★ Politics and the Media					O
49.210★ Introduction to Social Psychology			X		X
49.211★ Social Problems			O		
49.212★ Attitudes			O		X
49.213★ Small Groups			X		
49.214★ Social Perception			O		
49.254★ Adulthood			X		
49.260★ Introduction to Study of Personality			O		X
49.262★ Self Theories			O		O
49.308 The Analysis of Individual Behaviour					O

Course	Special Interest Stream				
	1	2	3	4	5
49.321★ Perception					O
49.330★ Principles of Psychological Testing			O		
49.340 Personnel Psychology			X		
51.220 Commercial Law	X	O			
51.320 Commercial Law II	O	O			
51.321 Company Law	O	O			
51.324 Tax Law and Policy	X	O			
51.325★ Consumer Law					O
51.441 Labour Law			X		
51.445★ Labour Relations in the Public Service			X		
53.210 Social Psychology			X		X
53.245 Sociology of Work			X		
53.246★ Industrial Sociology			O		
53.251★ Introduction to Population Studies					O
53.345★ Stratification and Mobility			O		
53.347★ Power			X		
53.351★ Methods of Population Analysis					O
53.355 Bureaucracy and Society			O		
53.400 Sociological Analysis					X
53.450★ Advanced Research Methodology					O
56.253★ Introduction to Human Ecology			X		
56.360 Social Change and Modernization			O		
69.201 Intermediate Calculus (or 69.207★/69.208★)		X		O	
69.217★ Linear Algebra		O		O	
69.350 Statistical Theory					O
69.351 Statistical Methods	O	X		O	X
69.384 Information Structures				O	
95.106★ Computer Applications				X	
95.202★ Advanced Programming Techniques				X	
95.204★ Programming Language I				X	
95.304★ File Structures and Data Bases				X	
95.401★ Operating Systems				O	
95.480★ Introduction to Software Engineering				X	

Accounting

Accounting 41.100

An Introduction to Accounting

A course open only to students registered in the business program, and to declared Major or Honours students in economics. Accounting method; concepts of income determination and asset valuation; accounting information and managerial decisions.

Day division: Lectures and problems three hours a week.

Accounting 41.101★

Principles of Financial Accounting

Discussion of the concepts of asset valuation and income measurement underlying the preparation and interpretation of financial statements.

Day and Evening divisions, Both terms: Lectures and problems three hours a week.

Accounting 41.102★

Management Accounting

An introduction to the problems of the use of accounting data for the purposes of planning and control of operations.

Prerequisite: Accounting 41.101★.

Day and Evening divisions, Both terms: Lectures and problems three hours a week.

Accounting 41.200

Intermediate Accounting

Further development of problems of revenue recognition and asset valuation.

Prerequisite: Accounting 41.100 or 41.101★ and 41.102★.

Day and Evening divisions: Lectures and problems three hours a week.

Accounting 41.301★

Accounting for Business Combinations

Consideration of the accounting problems associated with business combinations. Particular attention will be given to the preparation of consolidated financial statements. Discussion may also extend to financial reporting and diversified companies, reorganizations, etc. Selection of some topics may vary from year to year.

Prerequisite: Accounting 41.200.

Day and Evening divisions, Second term: Lectures and seminars, three hours a week.

Accounting 41.306★

Financial Reporting Problems

Discussion and analysis of selected problems relating to the presentation and interpretation of accounting information on financial position and operating performance. Material for discussion will be drawn from real situations, and from cases. Enrolment in this course may be restricted to thirty students per section. Prerequisite: Accounting 41.200.

Day and Evening divisions, First term: Lectures three hours a week.

Accounting 41.325★

Cost Accounting

The use of accounting information for purposes of cost control and performance evaluation. Topics will include: analysis and control of elements of cost; design and use of job order, process cost and standard cost systems; analysis of cost variances; variable costing; cost estimation; cost evaluation.

Prerequisite: Accounting 41.100 or 41.102★.

Day and Evening divisions, Both terms: Lectures three hours a week.

Accounting 41.326★

Management Accounting Systems

Discussion of the role of accounting in the functional areas of forward planning, performance evaluation, and the control of operations. Special attention will be given to the problems of forecasting and long-range planning.

Prerequisite: Accounting 41.325★, or permission of the School of Business.

Day and Evening divisions, Second term: Lectures three hours a week.

Accounting 41.400★

Accounting Theory

A study of the evolution of accounting theory with emphasis on concepts of income and current issues. Prerequisite: Accounting 41.200 (41.301★ and 41.306★ are recommended) and permission of the School of Business.

Day division; First term: Lectures and seminars three hours a week.

Accounting 41.401★

Research Topics in Accounting

An examination of approaches to research in accounting and an evaluation of selected topics of current interest in accounting theory and accounting research. Prerequisite: Accounting 41.400★ and permission of the School of Business.

Day division; Second term: Lectures and seminars two hours a week.

Accounting 41.412★

Auditing

A course in auditing theory, methodology and application.

Prerequisite: Accounting 41.200 (41.301★ and 41.306★ are recommended) and permission of the School of Business.

Enrolment may be restricted.

Evening division, Both terms: Lectures and seminars three hours a week.

Accounting 41.460★

Topics in Accounting

Consideration of selected topics in financial accounting, management accounting or auditing.

Prerequisites: Permission of the School of Business.

Finance

Management Studies 42.250★

Introduction to Business Finance

A study of business firms' financing, capital investment and dividend policy decisions, cost of capital and short-term asset management problems. (Also listed as Economics 43.250★.)

Prerequisites: Economics 43.100, Mathematics 69.107★ and 69.127★ or 69.117★, and Accounting 41.100 or Accounting 41.101★ and 41.102★.

Day and Evening divisions, First and Second terms: Lectures three hours a week.

Management Studies 42.350★

Corporate Finance

An examination of the major issues in corporate finance and applied financial management. Topics include: introduction to portfolio theory, the capital asset pricing model, cost of capital, capital structure and dividend policy, lease financing, capital budgeting under uncertainty, mergers and consolidations. (Also listed as Economics 43.350★.)

Prerequisites: Economics 43.202★ and 43.203★, 43.220 and Management Studies 42.250★.

Day division, First and Second terms: Lectures two hours a week.

Management Studies 42.351★

Principles of Investments

Procedures and methods of investment analysis. The stock and bond markets. Government regulation of securities markets. Valuation of common stocks and fixed income securities. Options, warrants, convertibles and commodities. (Also listed as Economics 43.351★.)

Prerequisites: Management Studies 42.250★ and Economics 43.220.

Day division, First and Second terms: Lectures two hours a week.

Management Studies 42.408★

Advanced Corporate Finance

An in-depth examination of some of the major theoretical issues in corporate finance. This course will require analyses and presentations of both articles from the finance literature and case studies. (Also listed as Economics 43.408★.)

Prerequisites: Management Studies 42.350★.

Day division, Second term: Lectures two hours a week.

Management Studies 42.410★

Finance and Capital Markets

The workings and structure of Canada's capital markets with particular reference to differing classes of institutional lenders and borrowers; relationships of non-bank financial intermediaries to the banking system, regulatory agencies and the public, the impact of these institutions on corporate financial and national economic policy, access to foreign capital markets

and external financing of Canadian economic development. (Also listed as Economics 43.410★.)

Prerequisite: Economics 43.212★, or 43.211★ (grade of C- or better).

Day division, First and Second terms: Lectures and seminars three hours a week.

Management Studies 42.411★

Investment Management

Analysis of investment requirements for individuals and institutional investors. Liquidity, risk and return. Portfolio design, construction, management and control. Performance measurement. Capital market theory. (Also listed as Economics 43.411★.)

Prerequisites: Management Studies 42.351★ and 42.410★ may be taken concurrently.

Day division, Second term: Lectures and seminars two hours a week.

Human Resources

Management Studies 42.210★

Management and Organizational Behaviour

The course examines planning, decision making, organizing, controlling, motivation, leadership, small group interaction and communication in organizations. Prerequisites: Sociology 53.100 or Psychology 49.100, and Economics 43.100.

Open only to students registered in the School of Business or in Public Administration programs. Other students are directed to Management Studies 42.214★. Credit cannot be obtained for both the new and existing Management Studies 42.210★ or Management Studies 42.310★ which preceded it.

Day and Evening divisions, First term.

Management Studies 42.214★

Introduction to Management

The course provides a broad introduction to management, including such topics as planning, decision making, organizing, controlling, operations management, staffing and quantitative management models for forecasting and program evaluation.

Prerequisites: One introductory university course in the social sciences or permission of the School of Business. This course does not carry credit for business or public administration students.

Day and Evening divisions, First and Second terms.

Management Studies 42.311★

Micro-Organizational Behaviour

The course examines cognitive-behavioural models of performance, alternative theories of motivation, organizations as social structures, socio-technical systems, organization change and conflict.

Prerequisites: Management Studies 42.210★ (Management and Organizational Behaviour) or permission of the School of Business. Credit cannot be obtained for both Management Studies 42.311★ and 42.211★.

Day and Evening divisions, Second term.

Management Studies 42.312★

Personnel Management

An examination of the personnel management function in large formal organizations, with emphasis on the private sector. Topics include manpower planning, recruitment, selection, performance evaluation, career development and training, compensation and benefits, and the role of the professional personnel manager.

Prerequisite: Management Studies 42.311★.

Evening division, First term.

Management Studies 42.357★

Introduction to Industrial Relations

An introduction to industrial relations covering such topics as: industrial relations systems, the functioning of trade unions, collective bargaining in Canada and Canadian public policy in industrial relations. (Also listed as Economics 43.357★.)

Prerequisite: Economics 43.100.

Day and Evening divisions, First and Second terms: Lectures three hours a week.

Management Studies 42.480★

Applied Organization Theory

The focus is on the organization as a unit of analysis. Organizations, particularly business organizations, are analyzed from the point of view of modern administrative theory. The course emphasizes management applications of various theories of organization (for example decision, control, contingency, institutional, and modern variants of human relations theory). Analysis may utilize the traditional business case approach and/or field projects. Students learn to apply the theories in the context of the management process.

Prerequisites: Management Studies 42.311★ and Fourth-year Honours business standing or permission of the School of Business.

Day division, First term.

Management Studies 42.490★

Business Policy Seminar

This course focuses upon the management process in business. It examines the functions and responsibilities of managers in the areas of strategy formulation and implementation. It is designed to integrate previous work in the functional disciplines of business administration by developing an overall analytical viewpoint.

Prerequisite: Fourth-year Honours business standing.

Day division, First and Second terms: Two hours a week.

Information Systems and Operations Management

Management Studies 42.290★

An Introduction to Business Information Systems

This course develops an understanding of computer technology as it applies to business. The course describes various hardware and software technologies in

terms of their impact on business systems. Typical computer applications are discussed to illustrate how the computer may be used in a business environment. Methods for specifying and implementing business information systems are introduced. (Also listed as Computer Science 95.290★.)

Prerequisites: Computer Science 95.104★ or 95.204★ and Accounting 41.100 (or 41.101★ and 41.102★.)

Day and Evening divisions, First and Second terms: Lectures three hours a week.

Management Studies 42.291★

Quantitative Applications of Computers in Business

This course introduces the computer as a problem-solving tool in business. The interactive language APL and various program packages such as SPSS are used to solve problems in finance, marketing and accounting. Typical areas from which problems are selected are: questionnaire processing, time series analysis, budgeting, PERT/CPM, decision trees, portfolio analysis, inventory control and simulation. (Also listed as Computer Science 95.291★.)

Prerequisites: Computer Science 95.101★, 95.104★, or 95.105★; Economics 43.220 or Mathematics 69.257★ and Management Studies 42.250★. (The latter two may be taken concurrently with Management Studies 42.291★.)

Day division, First term: Lectures three hours a week.

■ **Productions**

Management Studies 42.307★

Applied Economics: Production

An examination of the decision rules for planning production, work force, inventory and for optimal response to sales fluctuations.

Prerequisites: Economics 43.202★ and 43.203★, and 43.220. Economics 43.220 may be taken concurrently. Evening division, Second term: Lectures two hours a week.

Management Studies 42.391★

Business Data Processing Systems

The purpose of this course is to develop the skills necessary to participate in the construction of business data processing systems. Computer science and non-computer science students will form project teams to design and implement a particular system. Lectures are based on case studies and seminars. Student projects will be drawn, where possible, from actual problem areas in the business community. Typical projects include: inventory control, payroll, general ledger, project cost/accounting, simulation, information retrieval, computer auditing. (Also listed as Computer Science 95.391★.)

Prerequisites: Management Studies 42.290★ or Computer Science 95.310★ or permission of the School of Business.

Day division, Second term: Lectures three hours a week.

■ Quantitative Methods

Management Studies 42.404★

Operations Research I

Linear programming, networks, and such techniques as PERT (Program Evaluation and Review Technique) and CPM (Critical Path Method). (Also listed as Economics 43.404★.)

Prerequisites: Mathematics 69.107★, and 69.117★ or 69.127★.

Evening division, First term: Lectures three hours a week.

Management Studies 42.405★

Operations Research II

Dynamic programming inventory models, queuing, simulation, non-linear programming. (Also listed as Economics 43.405★.)

Prerequisites: Management Studies 42.404★ or equivalent and Economics 43.220.

Evening division, Second term: Lectures three hours a week.

Management Studies 42.409

Statistical Decision Theory

An examination of Bayesian and classical approaches to decision making under uncertainty for individuals and firms. (Also listed as Economics 43.409.)

Prerequisites: Economics 43.220 and Mathematics 69.107★, and 69.117★ or 69.127★.

Not offered 1982-83.

Marketing

Management Studies 42.208★

An Introduction to Marketing

An overview of the marketing function within the firm is sought. Promotion, product design, pricing and distribution channels are examined as key elements of the marketing mix. Consumer buyer behaviour, trends in retailing, wholesaling, sales force management and marketing research are other topics to be reviewed. Case studies are used to supplement class and reading material.

Prerequisites: Accounting 41.100, Economics 43.100, and Psychology 49.100 or Sociology 53.100, or permission of the School of Business.

Day and Evening divisions, First and Second terms: Lectures three hours a week.

Management Studies 42.315★

Marketing Communications

Study of promotion as a communication process and a tool of marketing management. The course examines the planning of a promotional campaign, including budget development, consumer research in promotion, creative strategy, media strategy, non-product promotion, ethical issues and evaluating the effectiveness of promotional programs.

Prerequisite: Management Studies 42.208★.

Day division: Second term.

Management Studies 42.415★

International Marketing

A study of the marketing function in international markets from a managerial perspective. Examines the unique political, legal, economic, socio-cultural and technological environments in foreign markets in relation to the marketing management functions of product, price, distribution and communication strategy as well as marketing research.

Prerequisite: Management Studies 42.208★.

Management Studies 42.416

Consumer Behaviour

The traditional socio-psychological theories of consumer behaviour are examined. Stress is put on the current literature and on the fundamental theories and concepts from various disciplines. Topics include: motivation, personality, perception, learning, communication of innovations, attitude theory, role theory, life style analysis, consumerism, etc.

Prerequisite: Management Studies 42.208★ or permission of the School of Business.

Day division: Lectures and seminars two hours a week.

Management Studies 42.417★

Marketing Research

This first course in marketing research covers such topics as: research design, questionnaire design, scales, sources of information and error, sampling techniques, basic statistical measures, measures of association, regression, and an overview of multivariate methods. The pragmatic implications of marketing research are stressed, with the use of case studies and actual data analysis.

Prerequisites: Management Studies 42.208★, Economics 43.220 or permission of the School of Business.

Day division, First term: Lectures three hours a week.

Management Studies 42.418★

Marketing Management

This course emphasizes the "managerial" aspects of marketing. Such topics as: market segmentation, social and regulatory aspects in marketing, channels of distribution, industrial marketing, sales force management and other current topics are discussed in detail.

Prerequisite: Management Studies 42.208★ or permission of the School of Business.

Day division, Second term.

Selected Studies

■ Business Communication

Management Studies 42.110★

Elements of English Writing

The course is designed to improve English communication skills. Emphasis is placed on the development of one's ability to express ideas effectively by learning

and practising the basic elements of the English language and composition. This course requirement will be waived for students who pass a placement test. Business students only. (Also listed as English 18.110★.)

Day division, First term: Lectures three hours a week.

Management Studies 42.111★

Business Writing

The course is designed to develop skills in effective business communications. This is accomplished through learning and practice in the areas of researching, planning and writing of business reports, briefs, etc.; documentation of reports; examination of psychological implications in business correspondence; organization of reports and verbal presentations, etc. Business students only. (Also listed as English 18.111★.)

Prerequisite: Management Studies 42.110★.

Day division, First and Second terms: Lectures three hours a week.

Business Management

Management Studies 42.360★

Small Business Management

This course deals with the socio-economic functions and activities of the owner-manager entrepreneur and examines the operations and nature of small businesses. Methods and models which are useful in the analysis of a small business enterprise are employed.

Prerequisites: Management Studies 42.208★ and 42.250★.

Management Studies 42.361★

Business and its Environment

This course provides an integrative macro-perspective of dynamic conditions which influence Canadian business, its organization, management and operations. Environmental forces studied include consumerism and other social groups, technological developments, economic conditions, politico-governmental actions and legislation as well as such contemporary issues as ecology and pollution, "the Conserver Society" and national policies and strategies for food, energy and housing. Business in its environment is studied as a system.

Prerequisites: Economics 43.100 and Sociology 53.100 or Psychology 49.100.

Evening division, First term: Lectures three hours a week.

■ **Topics**

Management Studies 42.460★

Topics in Management Studies

Consideration of selected topics in financial management, marketing production, etc.

Prerequisite: Permission of the School of Business.

Day division, Both terms: Two hours a week.

Management Studies 42.492

Directed Studies

This course is intended to provide students with the opportunity of carrying out a major research project under the supervision of a faculty member.

Prerequisite: Permission of the School of Business.

Courses Planned for Summer School and Evening Division

Summer School

The following courses are offered each Summer: Accounting 41.101★ and 41.102★; Management Studies 42.250★.

Evening Division

Core courses offered in the School of Business are available each year in the Evening division. These include Accounting 41.101★, 41.102★, 41.200; Management Studies 42.208★ 42.210★, 42.250★, 42.290★ and 42.357★ (43.357★).

Offerings of optional courses are subject to the availability of instructors.

Program Committee

Chairman and Program Co-ordinator
P. Smart (*French*)

Members

W. Clement (*Sociology*)
M. Davies (*Law*)
H.E. English (*Economics*)
P. Harcourt (*Film Studies*)
L. McDonald (*English*)
D. Muise (*History*)
D. Smith (*French*)
R. Whitaker (*Political Science*)
R. Clippingdale (*Director, Institute of Canadian Studies, ex officio*)

General Information

The undergraduate program in Canadian Studies aims to provide students with a broad, multidisciplinary view of Canada while at the same time allowing them to combine their study with disciplinary training in other arts and social science departments if they so desire. Canadian Studies offers Major, Combined Major and Combined Honours programs.

The program forms the undergraduate division of the Institute of Canadian Studies, and, like the graduate division of the institute, benefits from Carleton University's situation in Canada's capital and the richness of material available in Ottawa for such studies.

The program core is designed to accomplish two things. The first is to give the student a broad understanding of Canadian history, culture and society, and the opportunity to study the relationships among various aspects of Canada in some depth. The second is to give the student some competence in French and to encourage further study of the language.

Major and Honours Programs

The Major, Combined Major and Combined Honours programs in Canadian Studies require a core of the following five credits:

Canadian Studies 12.188 Contemporary English-Canadian and French-Canadian Literature;

French 20.108 Advanced French for Non-Majors or French 20.111 Advanced French;

Two of the following four courses, to be chosen in consultation with the Program Co-ordinator:

History 24.230, Canada from 1763;

Philosophy 32.202, Ideas of Man and Society in Canada;

Political Science 47.200, Canadian Government and Politics;

Sociology-Anthropology 56.220, Canadian Society.

Canadian Studies 12.302, Canadian Studies Seminar.

A grade-point average of at least 4.0 must be achieved in the required credits of the program core. Prerequisites in these courses are waived for Canadian Studies students. At least two credits towards the degree must be beyond the 200 level.

1. Major in Canadian Studies

In addition to the five core credits, the Canadian Studies Major must take the following five credits:

One arts credit from the following list:

Art History 11.200★, Canadian and American Art and 11.201★;

Canadian and American Art: The Twentieth Century; English 18.282, Canadian Literature;

French 20.267★, La littérature du XIXe siècle au Canada français and French 20.268★, La littérature du XXe siècle au Canada français;

History 24.230, Canada from 1763;

Philosophy 32.202, Ideas of Man and Society in Canada.

One social science credit from the following list:

Economics 43.325, The Economic Development of Canada;

Geography 45.305★; Canada, a Geographic System and Geography 45.306★, Canada, a Regional Mosaic; Political Science 47.200, Canadian Government and Politics;

Sociology-Anthropology 56.220, Canadian Society;

Three program options (courses with substantial Canadian content), approved as such by the Co-ordinator. At least two credits in program options must be beyond the 100 level.

2. Combined Major

In addition to the five core credits, the Canadian Studies Combined Major must take *one* credit from the following list:

Art History 11.200★, Canadian and American Art and 11.201★, Canadian and American Art: The Twentieth Century;

Economics 43.325, The Economic Development of Canada;

English 18.282, Canadian Literature;

French 20.267★, La littérature du XIXe siècle au Canada français and French 20.268★, La littérature du XXe siècle au Canada français;

Geography 45.305★, Canada, a Geographic System and Geography 45.306★, Canada, a Regional Mosaic; History 24.230, Canada from 1763;

Philosophy 32.202, Ideas of Man and Society in Canada;

Political Science 47.200, Canadian Government and Politics;

Sociology-Anthropology, 56.220 Canadian Society;

Students who wish to use one of the courses required by Canadian studies to fulfill a requirement of their second Major may negotiate a substitute course with the Canadian Studies Co-ordinator.

Students whose other Major is in Faculty of Arts must take one social science course within the Canadian Studies core.

Combined Honours

In addition to the five core credits, the Canadian Studies Combined Honours program requires the following three credits:

One arts credit *and* one social science credit with substantial Canadian content, *one* of which must be at the 400 level;

Canadian Studies 12.402, Canadian Studies seminar.

Courses Offered

Canadian Studies 12.188

Contemporary English-Canadian and French-Canadian Literature

This course, which is offered by faculty members from the English and French departments, provides a general introduction to and comparison of the two major literatures of Canada. Lectures are given in both English and French. Students are encouraged to use the French language for self-expression but need not do so. (Also listed as English 18.188 and French 20.188.) Prerequisite: A basic reading knowledge of French. Day division: Three hours a week.

E. Padolsky, P. Smart

Canadian Studies 12.302

Canadian Studies Seminar

This course is designed to allow the student to bring together the knowledge acquired in the various disciplines of the program. Each year a different topic or topics are explored in an interdisciplinary perspective. In 1982-83 the theme is The Politics of Culture.

Prerequisite: Third-year standing in Canadian studies or permission of the committee.

Evening division: Seminar three hours a week.

P. Smart

Canadian Studies 12.402

Canadian Studies Seminar

This course is designed to allow the Honours student to engage in research and class discussion on topics of an interdisciplinary nature.

Seminar three hours a week.

Students interested in taking this course in 1982-83 should consult with the Program Co-ordinator.

Courses with Substantial Canadian Content Offered within the Arts and Social Sciences Faculties

Art History

11.200★ Canadian and American Art to 1900

11.201★ Canadian and American Art: The Twentieth Century

11.300★ Canadian Painting

11.301★ Topics in Contemporary Canadian Art

11.302★ Canadian Architecture

11.400★ Canadian Artists and Architects

11.403★ Contemporary Inuit Art in the Context of Art History

English

18.188 (Canadian Studies 12.188) Contemporary English-Canadian and French-Canadian Literature

18.282 Canadian Literature

18.381 Studies in Canadian Poetry

18.383 Studies in Canadian Fiction

18.387 Selected Topic in Canadian Literature

18.483 Seminar in Canadian Fiction

18.487 Special Topic in Canadian Literature

18.488 Studies of the Literature of the Commonwealth

Film Studies

19.328 Canadian Cinema

French

20.163 Introduction to Literature: French-Canadian Texts from the End of the Nineteenth Century to the Present

20.188 (Canadian Studies 12.188) Contemporary English-Canadian and French-Canadian Literature

20.267★ La littérature du XIXe siècle au Canada français

20.268★ La littérature du XXe siècle au Canada français

20.332 Français canadien

Geography

45.230★ The Cultural Landscape

45.305★ Canada; A Geographic System

45.306★ Canada; A Regional Mosaic

45.308 Geography of Soils

45.320★ The Canadian City

45.333★ Land Use, Regional Development and Planning in Canada

45.334★ Renewable Resource Planning in a Local Area

45.335 Historical Geography of Canada

45.351★ Northlands

45.370★ Population Geography

45.421★ Selected Themes in Urban Geography

45.422★ Selected Themes in Social Geography

45.442★ Transportation Geography

45.443★ Issues in Applied Economic Geography

History

- 24.230 Canada from 1763
- 24.231 Historical Introduction to Modern Canada
- 24.330★ Social History of Canada
- 24.332★ The Maritime Provinces 1750-1900
- 24.335★ Canadian Labour Movements since Confederation
- 24.336★ Canadian External Relations
- 24.338★ Canadian Immigration and Settlement
- 24.339★ History of Western Canada
- 24.350 Modern British and Canadian Constitutional History
- 24.431 The Making of the Nation, 1849-1896
- 24.437 The National Experience, 1896-1939
- 24.439 Modern Canada, 1939-1967

Law

- 51.100 Introduction to Legal Studies
- 51.200 The Legal Process
- 51.205 Introduction to Public Law
- 51.220 Commercial Law I
- 51.234 Law and Antisocial Behaviour
- 51.284 Law of the Family
- 51.301★ Women and the Legal Process
- 51.351★ Communications Law I
- 51.352★ Communications Law II
- 51.353 Civil Liberties and Human Rights
- 51.354★ Law and Native Peoples of Canada
- 51.380 Law of Environmental Quality
- 51.441 Labour Law
- 51.445★ Labour Relations in the Public Service
- 51.450 Canadian Constitutional Law
- 51.456★ Administrative Law I
- 51.457★ Administrative Law II
- 51.491★ Tutorial in Law
- 51.492★ Tutorial in Law

Music

- 30.310★ Music in Canada 1600-1920
- 30.311★ Canadian Music in the Twentieth Century

Political Science

- 47.200 Canadian Government and Politics
- 47.300 Canadian Provincial Politics
- 47.301★ Canadian Provincial Government and Intergovernmental Relations
- 47.302★ Canadian Municipal Government
- 47.303★ Canadian Urban Politics
- 47.304★ Political Parties and Elections in Canada
- 47.335★ Canadian Political Ideas
- 47.336★ Canadian Political Culture and Ideologies
- 47.340 Canadian Public Administration
- 47.345★ Contemporary Public Policy Analysis
- 47.366★ Canadian Foreign Policy
- 47.400 Topics in Canadian Government and Politics
- 47.401 Policy Making in Canada
- 47.402★ Policy Seminar: Problems of Northern Development
- 47.403★ Politics and the Media
- 47.404★ Interest Groups in Canadian Politics
- 47.405 Federalism

- 47.406★ Legislative Process in Canada
- 47.407★ The Politics of Law Enforcement in Canada
- 47.408★ National Security and Intelligence In the Modern State
- 47.409★ French Canadian Politics

Sociology-Anthropology

- 56.220 Canadian Society
- 54.318★ The Prehistory of New World Indians and Eskimos
- 54.319★ The Ethnography of New World Indians and Eskimos
- 56.320 French Canada and Québec Society
- 56.421 Topics in Québec Society

School of Journalism offers the following courses with substantial Canadian content:

Journalism

- 28.306★ Comparative Media Studies
- 28.351★ Communications Law I
- 28.352★ Communications Law II

Mass Communication

- 27.211 The Mass Media in Modern Society
- 27.411 Selected Problems in Mass-Communication Analysis

Department of Classics

Officers of Instruction

Chairman
D.G. Beer

Professor
A. Trevor Hodge

Associate Professors
R.C. Blockley
A.S. Fotiou
R.L. Jeffreys
T.R. Robinson
M.E. Welsh

Assistant Professor
D.G. Beer

General Information

The discipline of classics is divided into three main fields: Latin, Greek, and classical civilization. By "Latin" and "Greek" are meant works of Latin and ancient Greek literature studied in the original tongue, not in translation; "classical civilization" covers all non-linguistic studies in classical antiquity, such as ancient history and literature in translation.

Honours and Majors programs exist in Latin alone and Greek alone, and in classical civilization alone. Combined Honours and Combined Major programs are available in a combination of any two of the three fields, i.e., Latin and Greek, Latin and classical civilization, Greek and classical civilization.

Combined Honours and Combined Majors programs can also be arranged combining any of the three with work in another department (for example, religion and classical civilization; Latin and French) upon consultation with the department chairmen concerned.

Major Programs

Major In Greek

Five full Greek credits and Classical Civilization 13.219.

Major In Latin

Five full Latin credits and Classical Civilization 13.219.

Major in Classical Civilization

Six full Classical Civilization credits and Latin or Greek at the 115 level or equivalent.

Students must include in the program Classical Civilization 13.209 and 13.219; the equivalent of one full credit from Classical Civilization 13.321★, 13.322★, and 13.323★; one from Classical Civilization 13.300 and 13.312; and two options.

Combined Majors

Greek and Classical Civilization

Four full Greek credits and four full Classical Civilization credits to include 13.209 and 13.219.

Latin and Classical Civilization

Four full Latin credits and four full Classical Civilization credits to include 13.209 and 13.219.

Greek and Latin

Four full Greek credits and four full Latin credits and Classical Civilization 13.219.

Combined Majors with Another Department

Combined Majors can be arranged with other departments. In addition to the requirements of the other department (for which the student should consult its chairman), one of the following will be required:

Greek

Four full Greek credits and Classical Civilization 13.219.

Latin

Four full Latin credits and Classical Civilization 13.219.

Classical Civilization

Five full Classical Civilization credits.

Students must include in the program Classical Civilization 13.209, 13.219 and at least one full credit at the 300 level.

All courses are to be chosen in consultation with the department.

Honours Programs

Honours In Greek

Seven full Greek credits and Classical Civilization 13.209 and 13.219.

Honours In Latin

Seven full Latin credits and Classical Civilization 13.209 and 13.219.

Honours In Classical Civilization

Nine full Classical Civilization credits and Greek 15.151 or Latin 16.151 and the other language at the 115 level.

Classical Civilization courses must include 13.209, 13.219, either 13.300 or 13.312, two of 13.321★, 13.322★ and 13.323★, and 13.427; four options.

Combined Honours

Greek and Classical Civilization

Six full Greek credits, five full Classical Civilization credits to include 13.209 and 13.219, and Latin 16.115 or 16.151.

Latin and Classical Civilization

Six full Latin credits, five full Classical Civilization credits to include 13.209 and 13.219 and Greek 15.115 or 15.151.

Greek and Latin

A minimum of 12 full credits out of 20 is required. These may be built up in various combinations to produce differing degrees of emphasis on the two languages. Acceptable combinations are:

Six full Greek credits and six full Latin credits;

Seven full Greek credits and five full Latin credits;

Five full Greek credits and seven full Latin credits;

Five full Greek credits, five full Latin credits and two full Classical Civilization credits.

Combined Honours with Another Department

Combined Honours can be arranged with other departments. In addition to the requirements of the other department (for which the student should consult its chairman), one of the following will normally be required:

Greek

Six full Greek credits and Classical Civilization 13.219.

Latin

Six full Latin credits and Classical Civilization 13.219.

Classical Civilization

Six full Classical Civilization credits to include 13.209, 13.219 and 13.427, and Latin 16.115 or Greek 15.115.

Note:

In all of the above prescriptions, Major and Honours, unless stated otherwise, the terms "Greek courses" and "Latin courses" should be understood to refer to courses at the 151 level and higher. Students with no previous knowledge of the language will need to take in addition Greek 15.115 or Latin 16.115 as a prerequisite for admission to the 151 level and this course will normally count toward their degree as one of their options. Greek 15.116 may not be taken to complete the department's requirements for any degree. It may be taken only as an option.

Chemistry of Art and Artifacts

The attention of students interested in archaeology is directed to Chemistry 65.107, The Chemistry of Art and Artifacts. The course, designed for archaeologists and historians dealing with the deterioration and preservation of artifacts and works of art, is strongly recommended by the Department as an option.

Graduate Program

The Department of Classics offers studies leading to the degree of Master of Arts. For further details consult the Graduate Studies and Research Calendar.

Courses Offered

■ Greek

Greek 15.115

Beginning Classical Greek

A beginning course to introduce students not only to grammar and syntax, but also to the reading of continuous prose.

Day division: Lectures and practice periods four hours a week.

Greek 15.116

Beginning Modern Greek

Not offered 1982-83.

Greek 15.151

First Year Greek: Reading and Prose Composition

A study of the *Alcestis* of Euripides and the *Orations* of Lysias. Some time is also devoted to prose composition. Prerequisite: Greek 15.115 or equivalent.

Day division: Lectures three hours a week.

Greek 15.211★

The Tragedians I

Introductory readings in the Greek tragedians.

Prerequisite: Greek 15.151 or permission of the department.

Day division, First term: Three tutorial hours a week.

Greek 15.217★

The Philosophers I

Introductory readings in the Greek philosophers.

Prerequisite: Greek 15.151 or permission of the department.

Day division: Second term: Three tutorial hours a week.

Greek 15.311★

The Tragedians II

Intermediate readings in the Greek tragedians.

Prerequisite: The equivalent of one full credit in Greek at the 200 level.

Day division, First term: Three tutorial hours a week.

Greek 15.317★

The Philosophers II

Intermediate readings in the Greek philosophers.

Prerequisite: The equivalent of one full credit in Greek at the 200 level.

Day division, Second term: Three tutorial hours a week.

Greek 15.411★

The Tragedians III

Advanced readings in the Greek tragedians.

Prerequisite: The equivalent of one full credit in Greek at the 300 level.

Day division, First term: Three tutorial hours a week.

Greek 15.417★

The Philosophers III

Advanced readings in the Greek philosophers.

Prerequisite: The equivalent of one full credit in Greek at the 300 level.

Day division, Second term: Three tutorial hours a week.

Other courses to be offered in rotation in coming years are:

Greek 15.212★

The Orators I

Greek 15.213★

Comedy I

Greek 15.214★

Lyric and Elegy I

Greek 15.215★

Epic I

Greek 15.216★

The Historians I

Greek 15.312★

The Orators II

Greek 15.313★

Comedy II

Greek 15.314★

Lyric and Elegy II

Greek 15.315★

Epic II

Greek 15.316★

The Historians II

Greek 15.412★

The Orators III

Greek 15.413★

Comedy III

Greek 15.414★

Lyric and Elegy III

Greek 15.415★

Epic III

Greek 15.416★

The Historians III

Greek 15.490★

Directed Study (Poetry)

Greek 15.491

Directed Study (Prose)

■ **Latin**

Latin 16.115

Beginning Latin

A course for students with no previous knowledge of Latin and designed to introduce them not only to the grammar and syntax of the language but also to the reading of continuous prose.

Day division: Lectures and practice periods four hours a week.

Latin 16.151

First Year Latin: Reading and Prose Composition

Selected readings from authors particularly valuable for the light they throw on Roman society, especially in the Silver Age. Time is also devoted to prose composition.

Prerequisite: Grade 12 Latin, Latin 16.115, or equivalent.

Day division, Lectures three hours a week.

Latin 16.211★

Lyric and Elegy I

Introductory readings in Catullus and Ovid.

Prerequisite: Latin 16.151 or permission of the department.

Day division, First term: Three tutorial hours a week.

Latin 16.214★

The Orators I

Introductory readings in the Roman orators.

Prerequisite: Latin 16.151 or permission of the department.

Day division, Second term: Three tutorial hours a week.

Latin 16.216★

Satire I

Introductory readings in the Roman satirists.

Prerequisite: Latin 16.151 or permission of the department.

Day division, Second term: Three tutorial hours a week.

Latin 16.218★

Virgil and Epic I

Introductory readings in Virgil.

Prerequisite: Latin 16.151 or permission of the department.

Day division, First term: Three tutorial hours a week.

Latin 16.311★

Lytic and Elegy II

Intermediate readings in Catullus and Ovid.

Prerequisite: The equivalent of one full credit in Latin at the 200 level.

Day division, First term: Three tutorial hours a week.

Latin 16.314★

The Orators II

Intermediate readings in the Roman orators.

Prerequisite: The equivalent of one full credit in Latin at the 200 level.

Day division, Second term: Three tutorial hours a week.

Latin 16.316★

Satire II

Intermediate readings in the Roman satirists.

Prerequisite: The equivalent of one full credit in Latin at the 200 level.

Day division, Second term: Three tutorial hours a week.

Latin 16.318★

Virgil and Epic II

Intermediate readings in Virgil.

Prerequisite: The equivalent of one full credit in Latin at the 200 level.

Day division, First term: Three tutorial hours a week.

Latin 16.411★

Lytic and Elegy III

Advanced readings in Catullus and Ovid.

Prerequisite: The equivalent of one full credit in Latin at the 300 level.

Day division, First term: Three tutorial hours a week.

Latin 16.414★

The Orators III

Advanced readings in the Roman orators.

Prerequisite: The equivalent of one full credit in Latin at the 300 level.

Day division, Second term: Three tutorial hours a week.

Latin 16.416★

Satire III

Advanced readings in the Roman satirists.

Prerequisite: The equivalent of one full credit in Latin at the 300 level.

Day division, Second term: Three tutorial hours a week.

Latin 16.418★

Virgil and Epic III

Advanced readings in Virgil.

Prerequisite: The equivalent of one full credit in Latin at the 300 level.

Day division, First term: Three tutorial hours a week.

Other courses to be offered in rotation in coming years:

Latin 16.212★

Drama I

Latin 16.213★

The Historians I

Latin 16.215★

The Philosophers I

Latin 16.217★

Letters I

Latin 16.312★

Drama II

Latin 16.313★

The Historians II

Latin 16.315★

The Philosophers II

Latin 16.317★

Letters II

Latin 16.412★

Drama III

Latin 16.413★

The Historians III

Latin 16.415★

The Philosophers III

Latin 16.417★

Letters III

Latin 16.490★

Directed Study (Poetry)

Latin 16.491★

Directed Study (Prose)

■ **Classical Civilization**

Classical Civilization 13.100

Some Aspects of Greek and Roman Civilization

Not offered 1982-83.

Classical Civilization 13.102★

Aspects of Greek Civilization

An introduction to Greek antiquity in which the main characteristics of classical Greece are discussed. It is especially recommended for students of other faculties who desire an arts option, or for arts students whose interest is general rather than specific. There are appropriate readings from Greek authors in translation.

Day and Evening divisions, First term: Lectures two hours a week.

Classical Civilization 13.103★

Aspects of Roman Civilization

An introduction to ancient Rome in which the main characteristics of Roman civilization are discussed. It is especially recommended for students of other faculties who desire an arts option, or for arts students whose interest is general rather than specific. There are appropriate readings from Latin authors in translation.

Day and Evening divisions, Second term: Lectures two hours a week.

Classical Civilization 13.209

Greek and Roman Literary Genres

A study through English translation of the various genres of Greek and Latin literature, especially those which influenced later European writings: epic, drama, the ode, pastoral poetry, satire. (Also listed as English 18.209.)

Evening division: Lectures two hours a week.

Classical Civilization 13.219

History of the Greco-Roman World

A study of the history of ancient Greece and Rome, with a concentration on the characteristic political, military and social institutions. Although emphasis will be upon the classical periods of Greece and Rome, attention will also be given to the continuity of institutions and the wider context of Europe and the Middle East, in which these developed. (Also listed as History 24.204.)

Day divisions: Lectures two hours a week.

Classical Civilization 13.231

Methods and Techniques of Archaeology

The interrelation of archaeology and anthropology, history, classics, art history, etc. Techniques of field archaeology such as stratigraphy, air photography, surveying, Carbon 14, typology and seriation, underwater archaeology, laboratory analysis: and the organization and administration of a major excavation. Evening division: Lectures two hours a week.

Classical Civilization 13.232★

Greek and Roman Art and Archaeology

The art, architecture and archaeology of Greece and Rome. Vase painting, sculpture, Greek and Roman architecture, town planning and analogous arts are studied. (Also listed as Art History 11.210★.)

Day division, First term: Lectures two hours a week.
A.T. Hodge

Classical Civilization 13.235

Ancient Science and Technology

The development of science and technology in the ancient world and their practical application in such fields as ancient engineering, machinery, metallurgy, transport, building, agriculture and Hippocratic medicine: the position of the craftsman and artisan in society, the attitude of the intellectuals to science and manual labour, and the effect upon technological

development of the institution of slavery. This course is suitable for students with no previous knowledge of Greece or Rome.

Evening division: Lectures two hours a week.

A.T. Hodge

Classical Civilization 13.240

Greek Philosophy

Offered in the Department of Philosophy as Philosophy 32.205.

Classical Civilization 13.300

Classical Mythology

Not offered 1982-83.

Classical Civilization 13.305

Sites and Civilization

(Summer only) Not offered 1982.

Classical Civilization 13.312

Greek and Roman Drama

A study in translation of Greek and Roman tragedy and comedy; the origins, character and development of the ancient theatre. Plays by the following authors are discussed: Aeschylus; Sophocles; Euripides; Aristophanes; Menander; Plautus; Terence; Seneca.

Day division: Lectures and discussions two hours a week.

D.G. Beer

Classical Civilization 13.321★

Studies in Greek History and Institutions

A study of one of the major periods of ancient Greek history: e.g. the Archaic Age; Fifth Century Athens; Alexander and the Hellenistic monarchy. Special attention will be given to the political, military and social institutions. Special topic for 1982-83: Greece in the fourth century B.C. (Also listed as History 24.309★.)

Prerequisite: Classical Civilization 13.219 or permission of the department.

Day division, Second term: Lectures two hours a week.

Classical Civilization 13.322★

Studies in Roman History and Institutions

A study of one of the major periods or themes of the history of ancient Rome: e.g. the Roman Revolution; the Military History of Rome; the Early Roman Empire; the end of the ancient world. Special attention will be given, where appropriate, to the political, social and economic institutions. Special topic for 1982-83: The Augustan Age. (Also listed as History 24.311★.)

Prerequisite: Classical Civilization 13.219 or permission of the department.

Day division, First term: Lectures two hours a week.

Classical Civilization 13.323★

Studies in Ancient History and Institutions

Not offered 1982-83.

Classical Civilization 13.331★

Pre-Classical Greek Art and Archaeology

The art, architecture and archaeology of the Minoan, Mycenaean and Cycladic civilizations. With emphasis on vase painting, architecture, small finds and frescoes, the course documents the development of art in the Aegean area down to the emergence of Greece into the historical era around 600 B.C. (Also listed as Art History 11.304★.)

Day division, Second term: Lectures two hours a week.

A.T. Hodge

Classical Civilization 13.334★

Etruscan and Roman Art

Offered in the Department of Art History as Art History 11.310★.

Classical Civilization 13.427

Selected Topic In Classical History and Literature

A seminar on historical and literary aspects of classical antiquity: e.g. Fifth Century Athens; the Augustan Age of Rome. Special topic for 1982-83: Fifth Century Athens. (Intended for Major and Honours students in Classics in their Third and Fourth years.)

Prerequisite: Permission of the department.

Day division: Seminar two hours a week.

Comparative Literature

Members of the Committee

Chairman

E.Z.S. Sarkany (*French and Comparative Literature*)

Members

V.K. Chari (*English*)

M. Ciavolella (*Italian*)

J.B. Dallett (*German*)

D.P. Forcese, *Dean of the Faculty of Social Sciences, ex officio*

N.E. Griffiths, *Dean of the Faculty of Arts, ex officio*

P. Laurette (*French*)

A. López-Fernández (*Spanish*)

F.G. Loriggio (*Italian and Comparative Literature*)

C.A. Marsden (*Spanish*)

R.M. Polzin (*Religion*)

P. van Rutten (*French*)

E.Z.S. Sarkany (*French and Comparative Literature*)

P. Varnai (*Russian*)

S.F. Wise, *Dean of the Faculty of Graduate Studies and Research, ex officio*

General Information

The Comparative Literature Committee offers a program of graduate study leading to the degree of Master of Arts. While the committee makes available some of its courses as options for qualified undergraduates and graduates who are registered in other disciplines and are appreciative of the broader perspectives offered by comparative literature, its main purpose is to provide courses for graduate students wishing to specialize in comparative literature.

The purpose of the comparative literature program is to study literature in its international context, and to relate and compare literary phenomena usually studied in isolation because of linguistic barriers and the traditional departmental division of academic disciplines. Thus, taking into account the interrelation of all humanistic studies such as the various literatures, philosophy, psychology, sociology, the visual arts and history, "comparatists" view literary creation within the total complex evolution of world literature. The historical flow of literary archetypes, the role of folklore and myth in literature, recurrent problems of literary theory and consideration of the less well known literatures of the world are some of the objects of comparative literature studies.

Students registered in other language departments who wish to enrol in one or more courses in the comparative literature program must demonstrate a reading knowledge of the languages required for each course.

Interested students are invited to contact the Chairman in room 1517, Arts Tower.

Graduate Program

For complete information on admission and course requirements please consult Calendar of the Faculty of Graduate Studies and Research.

Courses Offered

Comparative Literature 17.361

Studies in Literary Genres

Not offered 1982-83.

Comparative Literature 17.400

Analytical Approaches to Literature

An introduction to basic concepts governing approaches to literature, such as historical, sociological, stylistic, hermeneutic, aesthetic and psychological, with varying emphasis from year to year. Application of theories to literature is based on English texts, although essays may be written on works in other languages. Prerequisite: Normally Fourth-year standing and permission of the committee.

Comparative Literature 17.401

Selected Topic in Comparative Literature

Not offered 1982-83.

Program Co-ordinator
R. Saunders (Law)

Student Adviser
B. Cruikshank

General Information

The concentration in criminology and corrections provides students with the opportunity for focused study relating to crime and criminal justice. It allows students to take courses in the area while completing a Major in the disciplines of sociology, psychology or law. These courses enable the student to be exposed to the variety of topics and approaches one needs in order to master this broad field. When students choose to concentrate in this area, two sets of courses are required:

1. Concentration Requirements
2. Disciplinary Requirements

The first set includes those required courses which deal with criminology and corrections. The second set refers to those courses required to complete the particular Major chosen (i.e., sociology or psychology, or a Combined Major in any two of sociology, psychology and law). The introductory courses in psychology and sociology-anthropology are required for all students.

See also "Honours with a Concentration in Criminology and Corrections", below.

Concentration Requirements

Students in criminology and corrections must successfully complete the following compulsory courses:

1. Sociology 53.270 (Criminology)
2. Law 51.234 (Law and Anti-social Behaviour)
3. Psychology 49.342★ (Criminal Behaviour)
4. Sociology 53.373★ (Criminal Justice Policy) or 53.388★ (Current Issues in Criminal Justice)
5. Sociology 53.386★ (Field Placement) or Psychology 49.393★ (Practicum)

Disciplinary Requirements

In addition to the concentration requirements, students must also complete compulsory disciplinary requirements. These are found on the attached chart.

Students in the criminology and corrections concentration must select a Major from one of the five combinations given below:

1. Major in Sociology
2. Major in Psychology
3. Combined Major in Sociology and Psychology

4. Combined Major in Sociology and Law
5. Combined Major in Psychology and Law

Recommended Options

There are a number of courses relevant to the area of criminology and corrections, which students may consider as options. Such courses are:

Sociology 53.255★, Sociology of Deviance
Psychology 49.264★, Abnormal Psychology
Psychology 49.343★, Addiction
Law 51.102★, Introduction to the Canadian Legal System
Sociology 53.256★, Police in Society.

Grade Requirements

In addition to the requirements of the disciplinary Major(s), students in criminology and corrections are required to maintain a minimum of C- average in the concentration courses.

Field Placement (or Practicum)

Students may complete either Sociology 53.386★ or Psychology 49.393★ as part of their concentration requirements. The courses are open only to Third-year students and in order to assure a placement, students must register with the co-ordinator in the spring prior to entering Third year. Students who obtain their own placement in an agency should likewise contact the co-ordinator regarding necessary arrangements for credit.

Honours with a Concentration in Criminology and Corrections

Students interested in an Honours degree in sociology or psychology, or a Combined Honours degree in two of law, psychology or sociology, with the concentration in criminology and corrections must:

- (a) fulfil the disciplinary requirements for the Honours degree;
- (b) fulfil the concentration requirements in criminology and corrections; and
- (c) complete a thesis pertaining to the legal, psychological or sociological analysis of crime or criminal justice.

For further information consult the student adviser of the program and the Honours adviser in the relevant discipline.

Disciplinary Requirements

Requirements for a Major in Sociology

1. One chosen from 53.100, 54.100, 56.100
2. 56.200★
3. One chosen from 53.201★, 54.201★
4. One chosen from 56.305, 53.306, 54.310
5. One additional sociology credit at the 300 level (53.373★ and 53.386★)
6. Two additional sociology credits (53.270).

Requirements for a Major in Psychology

1. 49.100
2. Five chosen from: 49.200★, 49.205★, 49.210★, 49.220★, 49.250★, 49.260★, 49.270★, 49.300★, 49.301★, 49.302★.
(Note: Only one of the last three can be counted toward this group of five.)
3. Two and a half credits in psychology (49.342★ and 49.393★)
4. Two credits outside the Faculty of Social Sciences. (These must each be from a different department.)

Requirements for Combined Major in Sociology/Law Sociology/Psychology and Psychology/Law

Sociology

1. One chosen from 53.100, 54.100, 56.100
2. Either 56.200★ and 53.201★ (or 54.201★) or one chosen from 56.305, 53.306, 54.310
3. One additional Sociology credit at the 300 level (53.373★ and 53.386★)
4. One further sociology course (53.270).

Psychology

1. 49.100
2. Five chosen from 49.200★, 49.205★, 49.210★, 49.220★, 49.250★, 49.260★, 49.270★, 49.300★, 49.301★, 49.302★
(Note: Only one of the last three can be counted toward this group of five.)
3. One and a half additional psychology credits (49.342★ and 49.393★)
4. Two credits outside the Faculty of Social Sciences. (These must each be in a different department.)

Law

1. 51.100
2. 51.200
3. Two further law courses (including 51.234)
4. One law credit at the 300 level.

Notes:

1. Where concentration requirements also fulfil disciplinary requirements, the courses are listed in parentheses.

2. The introductory courses in psychology and sociology-anthropology are required for all students. Psychology 49.210★ or 49.260★ are prerequisites for 49.342★.

Members of the Committee

Chairman and Program Co-ordinator
L. Mann (*English*)

Members

C. Gordon (*Sociology and Anthropology*)
R.D. Gould (*German*)
R. Jeffreys (*Classics*)
A. Riding (*Commerce*)
J.H. Taylor (*History*)
W.E. Walther (*Psychology*)

General Information

In Directed Interdisciplinary Studies, a three-year program leading to a B.A. degree, students concentrate on a theme or field of interest which involves courses from various disciplines. Some possibilities are medieval studies, Third World studies, modern European studies, African studies, American studies, Asian studies, urban studies, women's studies, technology, society and environment studies or studies leading to a specific vocational goal. Please refer to the Interdisciplinary section of the Calendar, p. 429, for listings of courses in some of these fields.

Regulations and Degree Requirements

1. Students applying for admission to the program must complete the prescribed application form, available from the office of the Arts and Social Sciences Faculty Registrar. They are required to list and justify a minimum of eight credits related to a significant theme or field of interest and fitting into a coherent pattern. On acceptance of the application, the credits noted above, or any variation later agreed to by the Committee, become a requirement for completion of the degree.
2. Prior to submitting a formal application, students are advised to consult with the Program Co-ordinator for assistance in working out a suitable pattern of courses.
3. To allow time for adequate appraisal by the Committee, the application for admission should be submitted as early as possible before the year of entry to the program, preferably by August 15.
4. Students may apply for admission to the program at any time before they begin their last five credits towards the degree.
5. Normally, three credits in the student's field of interest are to be included among the last five credits taken towards the degree.

6. In order to graduate, students must have a minimum overall, grade-point average of 4.0. (C-) in all fifteen credit counted towards the degree.

7. Students must obtain at least one credit at the 300 level or above.

Department of Economics

Officers of Instruction

Chairman
K. Acheson

Assistant Chairman
G.E. Clarke

Supervisors of Graduate Studies
D.G. McFetridge, Ph.D. Studies
D.A. Smith, M.A. Studies

Supervisor of Honours Studies
R.L. Carson

Supervisor of Major Studies
R.F. Neill

Professors
K. Acheson
R. Brecher
H. English
W.I. Gillespie
K.A.J. Hay
W. Hettich
N.H. Lithwick (*Joint Appointment, School of Public Administration*)
K. Marwah
C. Maule
C.H. McMillan
T.K. Rymes
E.G. West

Associate Professors
J. Bernstein
R. Carson
E.U. Choudhri
G.E. Clarke
E.G. Davis
R. Geehan
C.L. Johnson
D.G. McFetridge
J.C. McManus
R.F. Neill
Soo Bin Park
A.R.M. Ritter (*Joint appointment, School of International Affairs*)
D. Smith
S. Wong

Assistant Professors
S. Ferris
S. Langdon

Director of Doctoral Studies, Joint Ph.D Program with the University of Ottawa
R. Bodkin

Departmental Administrator
Judy Poole

Mathematics Requirements

Students lacking Grade 13 mathematics should take Mathematics 69.006★ and 69.007★, and these will count for credit, as options, in Economic Major and Honours programs.

Major Programs

Major in Economics

Students are normally permitted to Major in economics only if they have obtained a grade of at least C- in Economics 43.100. The requirement for a Major is Mathematics 69.107★ and 69.127★ and at least six credits in economics: Economics 43.100, 43.202★, 43.203★, 43.212★, 43.213★, 43.220, one 400-level credit, and one other credit at the 200 or 300 level. The student's program for the Second and Third years must be approved by the Supervisor of Major Studies for the department.

Economics 43.202★ and 43.203★ replace and are equivalent to Economics 43.200 (no longer offered); Economics 43.212★ and 43.213★ replace and are equivalent to 43.210 (no longer offered);

A Major student must maintain a minimum grade point average of C- to remain in the program. For purposes of determining a Major student's average at graduation only required credits will be considered.

Combined Majors

Combined Major students will complete five credits in economics: Economics 43.100, 43.202★, 43.203★, 43.212★, 43.213★, one 400-level credit in economics and one other economics credit chosen in consultation with the Supervisor of Major Studies. Students in the Combined Major program must maintain a minimum grade point average of C- to remain in the program.

Honours Programs

The Honours programs may be entered in First year or by transfer from the Major programs if minimum Honours standing has been obtained. The student's program for the Second and subsequent years must be planned in consultation with the Supervisor of Honours Studies of the department.

Honours students should be especially careful not to accumulate more than three discredits after admission to the course-credit system. (See p. 95, article 4.4.)

Honours in Economics

The requirement for an Honours degree is a minimum of twenty credits with at least nine credits in economics and one credit in mathematics. The Honours requirements include: Mathematics 69.107★ and 69.127★ or equivalent; Economics 43.100, 43.202★, 43.203★, 43.212★, 43.213★, 43.220, 43.420★, 43.421★, 43.490, 43.499★, two and a half additional credits in economics, of which one and a half credits must be at the 400 level.

An Honours Essay (Economics 43.498) with a minimum grade of B- may be written to earn one and a half credits at the 400 level. Students who choose to do the Honours Essay must have a detailed outline of the Essay approved by their adviser and by the Honours Supervisor before the last day for withdrawal from full courses. In the absence of such an approved outline, the department may require the student to withdraw from the Honours Essay.

For purposes of determining an Honours student's standing at graduation, only required credits will be considered. If a student has taken more than the minimum number of twenty credits, the lowest grades among optional credits taken over the minimum will be disregarded in computing final standing.

Normal Course Pattern in Honours Economics

First year: Economics 43.100, Mathematics 69.107★ and 69.127★.

Second year: Economics 43.202★, 43.203★, 43.212★, 43.213★, 43.220.

Third year: Economics 43.420★ and 43.421★; one additional Economics credit at the 300 or 400 level.

Fourth year: Economics 43.490, 43.499★, one and a half Economics credits at the 400 level.

Other course patterns may be arranged after consultation with the Supervisor of Honours Studies.

Combined Honours

Students may apply for Combined Honours in economics and another discipline. Students should consult the Supervisor of Honours Studies.

Students in the Combined Honours program are normally required to take one credit in mathematics and at least seven credits in economics, of which three credits are at the 400 level. The requirements are: Mathematics 69.107★ and 69.127★ or equivalent; Economics 43.100, 43.202★, 43.203★, 43.212★, 43.213★, 43.220, 43.420★, 43.421★, 43.490, 43.499★, an additional half credit at the 400 level. The Honours Essay (Economics 43.498) with a weight of one and a half credits, requiring a minimum grade of B- may be written in economics.

The minimum of twenty credits and the procedure for computing final standing described above apply to the Combined Honours program.

The Combined Honours programs in four related fields are described in greater detail below.

Normal Course Pattern in Combined Honours in Economics

First year: Economics 43.100; Mathematics 69.107★ and 69.127★.

Second year: Economics 43.202★, 43.203★, 43.212, 43.213★, 43.220 (or recognized equivalent).

Third year: Economics 43.420★ and 43.421★.

Fourth year: Economics 43.490, 43.499★ and one additional half credit in Economics at the 400 level.

Other course patterns may be arranged after consultation with the Supervisor of Honours Studies.

Combined Honours in Economics and Political Science

Students intending to follow this program should take Mathematics 69.107★, and 69.127★ and Economics 43.100 or Political Science 47.100 (or preferably both) in the First year. The choice of courses in subsequent years will be subject to the approval of the two departments. The Honours requirements include at least an additional six courses in economics and six courses in political science, one of which must be Political Science 47.498 or Economics 43.498 to be taken in the student's final year. These will be arranged so that students may transfer either to full Honours in political science or to full Honours in economics at the end of the Third year if they then wish to specialize more intensively. Students must also take the comprehensive examination in economics and meet the language requirements of the Department of Political Science. Economics 43.420★ and 43.421★ are required.

Combined Honours in Economics and Mathematics

Students intending to take this program take seven courses in economics and nine in mathematics and satisfy the comprehensive examination in economics. Each year's program should be determined in consultation with the two departments.

The economics courses taken shall be: Economics 43.100, 43.202★, 43.203★, 43.212★, 43.213★, 43.420★, 43.421★, 43.490, 43.499★, one credit at either the 300 level or 400 level and a half credit at the 400 level. At least seven credits in mathematics must be taken beyond the First year (if Mathematics 69.102 and 69.112 or their equivalent were taken in the First year), including Mathematics 70.200, 70.210, 70.260, 70.301★, 70.302★, 70.350 and two other credits at the 300 level or above, at least one of which is at the 400 level.

Combined Honours in Economics and Journalism

Students in this program are required to complete a total of twenty-one credits and may choose to graduate with either a B.A. (Honours) or B.J. (Honours).

The economics requirements are: Mathematics 69.107★, and 69.127★, Economics 43.100, 43.202★, 43.203★, 43.212★, 43.213★, 43.220, 43.420★, 43.421★, 43.490, 43.499★; an approved course in economic history and a half option in economics at the 400 level. The journalism requirements are: a language course preferably French, (acceptable First-year French courses are 20.102 and 20.108), Journalism 28.100, 28.101★, 28.200, 28.220, 28.320, 28.321★, 28.351★, 28.421, 28.498.

Note:

Journalism 28.220 and 28.320 are both two-credit courses.

Combined Honours in Economics and Sociology

The economics requirements are: Mathematics 69.107★ and 69.127★, Economics 43.100, 43.202★, 43.203★, 43.212★, 43.213★, 43.220 (or Sociology 53.370), 43.420★, 43.421★, 43.490, 43.499★ and an additional half course at the 400 level.

The sociology requirements are: Sociology 53.100 or Anthropology 54.100 or Sociology-Anthropology 56.100; Sociology-Anthropology 56.200★ and either Sociology 53.201★ or Anthropology 54.201★; Sociology 53.370 or Economics 43.220; Sociology-Anthropology 56.305 or Sociology 53.306 (if the Honours Essay is written in sociology, Sociology 53.306 is recommended); three other credits as follows: (a) if the Honours Essay is written in Sociology: 53.495 or 53.498; and two additional courses in sociology, one of which must be taken at the 400 or 500 level; or (b) three additional courses in sociology, one of which must be taken at the 400 or 500 level.

Graduate Program

The Department of Economics offers studies leading to the degree of Master of Arts and to the degree of Doctor of Philosophy. For further details consult the Graduate Studies and Research Calendar.

Courses Offered

Note:

Not all of the courses listed below can be made available each year in the Fall and Winter terms. Students are advised to consult with the department prior to registration to ascertain those courses offered in 1982-83.

Economics 43.100

Introduction to Economics

An introduction to the major tools and policy problems of economics. Economic analysis is applied to a variety of contemporary problems such as pollution, poverty, the control of monopoly, unemployment, inflation and international economic problems.

Day and Evening divisions: Lectures three hours a week. Discussion groups (one hour) may be arranged.

Economics 43.100M

Introduction to Economics

Economics 43.100M is a self-paced Modular section of Economics 43.100. The Resource Centre is open on Saturdays, and at other times to be designated. Not offered 1982-83.

Economics 43.201★

Introduction to Microeconomic Theory and Analysis

The main topics in microeconomic theory with illustrations of their applications. Not open to students majoring in economics or commerce.

Credit will not be given for both Economics 43.201★ and either of 43.202★ or 43.203★.

Prerequisite: Economics 43.100 or permission of the department.

Evening division, First term: Lectures and discussions three hours a week.

Economics 43.202★

Intermediate Microeconomics I

An analysis of consumer demand, production, costs and an introduction to market structures, with special reference to the determination of conditions which maximize social welfare.

Students should be aware that elementary techniques of the level of Mathematics 69.007★ may be introduced and used in some sections of this course. Credit will not be given for both Economics 43.201★ and 43.202★.

Prerequisite: Economics 43.100 (grade of C- or better).

Day and Evening divisions: Lectures three hours a week.

Economics 43.203★

Intermediate Microeconomics II

An analysis of distribution, market structures and general equilibrium theory, with special reference to the determination of conditions which maximize social welfare.

Students should be aware that elementary techniques of the level of Mathematics 69.007★ may be introduced and used in some sections of this course. Credit will not be given for both Economics 43.201★ and 43.203★.

Prerequisite: Economics 43.202★.

Day and Evening divisions: Lectures three hours a week.

Economics 43.211★

Introduction to Macroeconomic Theory and Analysis

The main topics in macroeconomic theory with illustrations of their application. Not open to students majoring in economics or commerce.

Credit will not be given for both Economics 43.211★ and either of 43.212★ or 43.213★.

Prerequisite: Economics 43.100 or permission of the department.

Evening division, Second term: Lectures and discussions three hours a week.

Economics 43.212★

Intermediate Macroeconomics I

An examination of the standard macroeconomic model of a closed economy, emphasizing both the aggregate demand and the aggregate supply side of the economy. The model would be used to analyse basic macroeconomic problems and evaluate proposed solutions of these problems.

Students should be aware that elementary techniques of the level of Mathematics 69.007★ may be introduced and used in some sections of this course. Credit will not be given for both Economics 43.211★ and 43.212★.

Prerequisite: Economics 43.100 (grade of C- or better).

Day and Evening divisions: Lectures three hours a week.

Economics 43.213★

Intermediate Macroeconomics II

An extension of the standard macroeconomic model to include topics such as macroeconomic theory and policy in an open economy, theoretical development and empirical analysis of basic macro relationships, the short-run dynamics of wage-price adjustment and economic growth.

Students should be aware that elementary techniques of the level of Mathematics 69.007★ may be introduced and used in some sections of this course. Credit will not be given for both Economics 43.211★ and 43.213★.

Prerequisite: Economics 43.212★

Day and Evening divisions: Lectures three hours a week.

Economics 43.220

Statistical Methods in the Social Sciences

An introduction to statistical inference.

Prerequisites: Mathematics 69.107★ and 69.127★ or equivalent and one of Economics 43.100 (grade of C- or better), Political Science 47.100 or Sociology 53.100, or permission of the department.

Day and Evening divisions: Lectures three hours a week, laboratory two hours a week.

Economics 43.250★

Introduction to Business Finance

A study of business firms' financing and dividend policy decisions, cost of capital and short-term asset management problems. (Also listed as Management Studies 42.250★.)

Prerequisite: Economics 43.100, Mathematics 69.107★ and 69.127★ or 69.117★ and Accounting 41.100, or 41.101★ and 41.102★.

Day and Evening divisions, First and Second terms: Lectures three hours a week.

Economics 43.303★

Public Finance

Public expenditures and their relations to economic activity; public revenues; principles of taxation; public borrowing and the public debt; fiscal policy; federal-provincial fiscal arrangements.

Credit will not be granted for both Economics 43.303★ and 43.304 (no longer offered).

Prerequisite: Economics 43.100

Economics 43.305★

Selected Topics in Economic History

Examination of the economic development of North America or Europe or other possible selected sets of countries. Countries examined will vary from year to year.

Prerequisite: Economics 43.100 or permission of the department.

Economics 43.320★

Economics of Information and the Media

An introduction to the economics of information and the media, with a focus on the analysis of production and distribution of information, the application of theory to selected communications-media industries in Canada, and the analysis of existing Canadian policies.

Prerequisite: Economics 43.100

Day division, First term: Lectures three hours a week.

Economics 43.321★

National Accounting

An introduction to the modern social accounting framework, encompassing the national product accounts, the input-output accounts and national transactions accounts, with emphasis on Canadian practice. Attention is paid to new developments such as national wealth accounts, constant dollar and price accounts, productivity measurement.

Prerequisite: Economics 43.100.

Evening division, First term: Lectures three hours a week.

Economics 43.324★

An Economic Analysis of Law

An introduction to the application of economic principles and methodology to a variety of legal problems with particular emphasis on the theory of property rights and the allocation of resources.

Prerequisite: Economics 43.100.

Evening division, Second term: Lectures three hours a week.

Economics 43.325

The Economic Development of Canada

A general survey of Canadian economic development from 1534 to 1970.

Prerequisite: Economics 43.100 or permission of the department.

Evening division: Lectures three hours a week.

Economics 43.326★

Economic Theories of Federalism

An introduction to the economic dimensions of federalism, with particular reference to Canadian experience. The issues to be covered include: fiscal federalism; the impact of federal economic policies on provincial economies; the consequences of province-serving policies (trade barriers, impediments to factor flows, etc.) for national economic performance; decentralization possibilities for fiscal and economic development policies. Analytical tools to be developed include interregional trade models, interregional input-output analysis, and interregional balance of payments models.

Prerequisite: Economics 43.100. Students are encouraged to take Political Science 47.301★ to obtain an appreciation of the political dimension of many of these issues.

Evening division, Second term: Lectures three hours a week.

Economics 43.331★

Social Economics

An examination of some of the ways in which public authorities attempt to reshape the economic environment towards a greater conformity to social values. The objectives and practice of social security schemes, housing policy, "the war on poverty" etc. are considered.

Prerequisite: Economics 43.100.

Credit will not be granted for both Economics 43.331★ and 43.330. (no longer offered).

Day division: Lectures three hours a week.

Economics 43.335

Political Economy in the Modern State

An examination of the role of government in the economy with special emphasis on alternate forms of social co-ordination and the advantages and disadvantages of each form in the Canadian system.

Prerequisite: Economics 43.100.

Day division: Lectures two hours a week.

Economics 43.341★

Regional Economics

An examination of the issue of unequal distribution of economic activity between spatially defined regions. Emphasis will be placed on an evaluation of the current pattern in Canada since World War II, considering "natural" adjustment mechanisms, policy tools that have been developed, and the outlook for the future. Lessons will be drawn from empirical and theoretical studies of the issue on other economies.

Credit will not be granted for both Economics 43.341★ and 43.340 (no longer offered).

Prerequisite: Economics 43.100.

Evening division, Second term: Lectures three hours a week.

Economics 43.342★

Special Studies in Economics

Content of this course varies year by year, topics to be determined by the instructor invited to offer the course.

Prerequisite: Economics 43.100.

Day division, Second term: Lectures three hours a week.

Economics 43.344★

Economic Thought and Policy in Canada

An account of the interrelationship between economic theories expounded in Canada and their issue in national policy.

Prerequisite: An introductory course in one of the social sciences or Canadian history.

Economics 43.346★

Agricultural Economics

An examination of the agricultural industry in the national economy and in low income societies. The course emphasizes the working out of the basic forces which determine supply-demand for the industry and the functional distribution of income among the factors of production. The place of institutions is examined and public policy is critically reviewed.

Credit will not be granted for both Economics 43.346★ and 43.345 (no longer offered).

Prerequisite: Economics 43.100.

Economics 43.350★

Corporate Finance

An examination of the major issues in corporate finance and applied financial management. Topics include: introduction to portfolio theory, the capital asset pricing model, cost of capital, capital structure and dividend policy, lease financing, capital budgeting under uncertainty, mergers and consolidations. (Also listed as Management Studies 42.350★.)

Prerequisites: Economics 43.202★ and 43.203★ or 43.201★, 43.220 and 43.250★.

Day division, First and Second terms: Lectures two hours a week.

Economics 43.351★

Principles of Investments

Procedures and methods of investment analysis. The stock and bond markets. Government regulation of securities markets. Valuation of common stocks and fixed income securities. Options, warrants, convertibles and commodities. (Also listed as Management Studies 43.351★.)

Prerequisites: Economics 43.250★ and 43.220.

Day division, First and Second terms: Lectures two hours a week.

Economics 43.356★

Introduction to Labour Economics

An introduction to the basic principles of labour economics. Topics covered include: labour markets, the supply of labour, the demand for labour, labour mobility and migration, wage structures, the logic of trade

union action, economics of trade unions, the impact of trade unions and selected macroeconomic aspects of the labour market.

Prerequisite: Economics 43.100.

Day division, First term: Lectures three hours a week.

Economics 43.357★

Introduction to Industrial Relations

An introduction to industrial relations covering such topics as: industrial relations systems, the functioning of trade unions, collective bargaining in Canada and Canadian public policy in industrial relations. (Also listed as Management Studies 42.357★.)

Prerequisite: Economics 43.100.

Day and Evening divisions, First and Second term: Lectures three hours a week.

Economics 43.360★

Topics in International Economics

Special topics in international trade are examined. Among possible areas to be considered are theory and policy in international trade, finance, investment and development. Intended for students planning to take only one half course in international economics at the 300 level. More comprehensive coverage of international economics may be achieved by taking both Economics 43.361★ and 43.362★.

Prerequisite: Economics 43.100 or permission of the department.

Evening division, First term: Lectures three hours a week.

Economics 43.361★

Introduction to International Trade

An extension of the basic principles of economics to international trade. Topics covered include the theory of international specialization, tariffs and other barriers to trade, trade liberalization and economic integration, international movements of labour and capital, trade and development.

Prerequisite: Economics 43.100.

Day division, First term: Lectures three hours a week.

Economics 43.362★

International Monetary Problems

A discussion of the theory and institutions of the international monetary system, and the related balance of payments problems of nation states.

Prerequisite: Economics 43.100.

Evening division, Second term: Lectures three hours a week.

Economics 43.363★

Introduction to Economic Development

A discussion of the principles of economic development. Application to the problems of the developing countries.

Prerequisite: Economics 43.100.

Evening division, First term: Lectures three hours a week.

Economics 43.365★

The Economics of Planning

This course considers several aspects of the economics of planning.

Prerequisite: Economics 43.100.

Economics 43.371★

Socialist Economic Systems: The Soviet Model

This course examines Soviet socialism in its historical development and current practice. Topics include: Soviet industrialization, central planning, collectivization of agriculture, foreign economic relations and recent trends in the Soviet economy. The Soviet economy is studied in the context of comparative economic systems.

Prerequisite: Economics 43.100.

Day division: Lectures and discussions three hours a week.

Economics 43.372★

Socialist Economic Systems: Eastern European Variants

This course examines the two major Eastern European variants of the traditional model of a centrally planned, socialist economy. Hungary's "New Economic Mechanism" and Yugoslavia's "Self-Managed Economy" are studied in the context of economic reform in Eastern Europe.

Prerequisite: Economics 43.100.

Evening division: Lectures and discussion three hours a week.

Economics 43.380★

Topics in Canadian Economic Policy

Economic analysis applied to selected policy areas, issues or institutions. One or more of the following topics may be dealt with: decision-making by bureaucratic institutions, policy problems arising from poverty, the economics of natural resources and pollution, urban economics.

Prerequisite: Economics 43.100.

Evening division, Second term: Lectures three hours a week.

Economics 43.385★

The Economics of Natural Resources

This course is concerned with the application of economic analysis to questions concerning natural resource use, management and conservation, as well as market failures and environmental effects. Policy problems relating to natural resources are discussed.

Prerequisite: Economics 43.100.

Evening division, First term: Lectures three hours a week.

Economics 43.404★

Operations Research I

Linear programming, networks, and such techniques as PERT (Program Evaluation and Review Technique) and CPM (Critical Path Method). (Also listed as Management Studies 42.404★.)

Prerequisites: Mathematics 69.107★, and 69.117★ or 69.127★ (grade of C- or better).
Day and Evening divisions, First term: Lectures three hours a week.

Economics 43.405★

Operations Research II

Dynamic programming, inventory models, queuing, simulation, non-linear programming. (Also listed as Management Studies 42.405★.)
Prerequisite: Economics 43.404★ or equivalent; Economics 43.220 (grade of C- or better).
Day division, Second term: Lectures three hours a week.

Economics 43.408★

Advanced Corporate Finance

An in-depth examination of some of the major theoretical issues in corporate finance. This course requires analyses and presentations of both articles from the finance literature and case studies. (Also listed as Management Studies 42.408★.)
Prerequisite: Economics 43.350★.
Day division, Second term: Lectures two hours a week.

Economics 43.409

Statistical Decision Theory

An examination of Bayesian and classical approaches to decision-making under uncertainty for individuals and firms. (Also listed as Management Studies 42.409.)
Prerequisites: Economics 43.220 (grade of C- or better).

Economics 43.410★

Finance and Capital Markets

The workings and structure of Canada's capital markets with particular reference to differing classes of institutional lenders and borrowers; relationships of non-bank financial intermediaries to the banking system, regulatory agencies and the public, the impact of these institutions on corporate financial and national economic policy, access to foreign capital markets and external financing of Canadian economic development. (Also listed as Management Studies 42.410★.)
Prerequisite: Economics 43.212★, or 43.211★ (grade of C- or better).
Day division, First and Second terms: Lectures and seminars three hours a week.

Economics 43.411★

Investment Management

Analysis of investment requirements for individuals and institutional investors: liquidity, risk and return; portfolio design, construction, management and control; performance measurement; capital market theory. (Also listed as Management Studies 42.411★.)
Prerequisites: Economics 43.351★ and 43.410★ may be taken concurrently.
Day division, Second term: Lectures and seminars two hours a week.

Economics 43.415

History of Economic Thought

The crucial achievements in economic theory and doctrine in the nineteenth and twentieth centuries are studied. Special emphasis is given to the interrelationship between the social environment and economic thought, especially to the role of economics in the development of the national state and international institutions.
Prerequisite: One of Economics 43.202★ and 43.203★, 43.201★, 43.212★ and 43.213★, or 43.211★ or permission of the department.
Day division: Lectures and seminars three hours a week.

Economics 43.420★

Microeconomic Theory

Theory of individual economic behaviour, theory of exchange and production, general equilibrium, alternative theories of pricing, allocation and distribution. Elementary tools of mathematics are employed in the exposition of most topics.
Prerequisites: Economics 43.202★ and 43.203★ and Mathematics 69.107★ and 69.127★.
This course is required for students in the Honours program in economics.
Day division, First term: Lectures three hours a week.

Economics 43.421★

Macroeconomic Theory

Macroeconomic theory and its implications for economic policy are examined in this course. Emphasis is placed on major controversies in the field, with consideration given to topics such as: determination of national income, employment, price level and interest rates; commodity, labour and asset market behaviour; and fiscal and monetary management for economic stabilization. Elementary tools of mathematics are employed in the exposition of most topics.
Prerequisites: Economics 43.212★ and 43.213★ and Mathematics 69.107★ and 69.127★.
This course is required for students in the Honours program in economics.
Day division, Second term: Lectures three hours a week.

Economics 43.425

Advanced Economic History

A discussion of methodology applicable to the analysis of economic history. Intensive examination of selected topics in North American and West European economic history.
Prerequisite: One of Economics 43.305, 43.310, 43.315 or 43.325 or permission of the department.

Economics 43.430

Industrial Organization and Public Policy

An analysis of the organization of Canadian industry with reference to associated U.S. industry where necessary. A few representative industries are examined in some detail. Price theory is used to distinguish

economic from institutional factors affecting the structure of the economy. Emphasis is placed upon public policies which affect, intentionally or otherwise, the organization and behaviour of industry, e.g., public utility regulation, control of restrictive practices, commercial policy and price supports.

Prerequisite: Economics 43.202★ and 43.203★ or 43.201★.

Day division: Lectures and seminars three hours a week.

Economics 43.435

Manpower Economics and Labour Policy

A discussion of topics in labour economics with emphasis on the Canadian economy. Price theory is applied to the labour market. Emphasis is placed upon public policies which affect the organization and performance of labour, e.g. equal pay legislation. Topics of current interest are examined in light of recent research findings.

Prerequisite: Economics 43.202★ and 43.203★ or 43.201★.

Day division: Lectures three hours a week.

Economics 43.441★

Public Finance: Taxation

A discussion of the theory of taxation and an examination of empirical attempts to quantify the theory. Some topics of current interest, such as the redistribution of income in Canada and tax reform are examined.

Credit will not be given for both Economics 43.441★ and 43.440 (no longer offered).

Prerequisite: Economics 43.202★ and 43.203★, or 43.201★.

Day division: Lectures three hours a week.

Economics 43.442★

Public Finance: Expenditures

A discussion of the theory of government expenditures and an examination of empirical attempts to quantify the theory. Some topics of current interest, such as expenditures and grants in the Canadian federalism are examined.

Credit will not be given for both Economics 43.442★ and 43.440 (no longer offered).

Prerequisite: Economics 43.202★ and 43.203★, or 43.201★.

Day division: Lectures three hours a week.

Economics 43.445★

Welfare Economics

An examination of contemporary welfare economics and its applications.

Prerequisite: Economics 43.202★ and 43.203★ or 43.201★.

Not offered 1982-83.

Economics 43.446★

Economic Dynamics: Growth

An introduction to modern theories of the growth of income. The simple "razor's edge" growth theory of Harrod leads to an examination of the neoclassical

growth theorems. Golden Rules of Accumulation; the role of money in growth and the effects on debtor-creditor position of growth in an open economy are analysed together with policies for growth and growth paradoxes.

Prerequisite: Economics 43.212★ and 43.213★ or 43.211★.

First term: Lectures three hours a week.

Economics 43.451★

Economic Dynamics: Business Cycles

An analysis of the nature and causes of fluctuations in income, prices and employment. Short-run dynamic models arising from multiplier-accelerator and other economic processes are examined. Cycle simulation; forecasting, stability conditions; anti-cyclical policy and the problems of maximizing growth without cycles are discussed.

Prerequisites: One of Economics 43.446★, 43.212★ and 43.213★, or 43.211★ and permission of the department.

Second term: Lectures three hours a week.

Economics 43.457★

The Economics of Development

An examination of some theoretical approaches to the economics of development, together with analysis of some economic policy issues of a largely internal character, such as intersectoral investment allocation, income distribution, unemployment, and investment in human development.

Credit will not be given for Economics 43.457★ and 43.456 (no longer offered).

Prerequisite: Economics 43.202★ and 43.203★, or 43.201★; and 43.212★ and 43.213★ or 43.211★.

Evening division: Lectures three hours a week.

Economics 43.458★

International Aspects of Economic Development

An analysis of the international economic policy problems of development in Asia, Africa and Latin America, focusing on international trade, direct foreign investment, technological transfer, regional integration, debt and development financing, and international migration.

Credit will not be given for both Economics 43.456 and 43.458★.

Prerequisite: Economics 43.202★ and 43.203★, or 43.201★; and 43.212★ and 43.213★, or 43.211★.

Evening division: Lectures three hours a week.

Economics 43.461★

International Trade Theory and Policy

International trade theory and its implications for economic policy. Topics such as determinants of trade and specialization, gains from trade and commercial policy, international factor mobility, growth and development.

Credit will not be given for both Economics 43.461★ and 43.460 (no longer offered).

Prerequisite: Economics 43.202★ and 43.203★, or 43.201★.

Day division: Lectures three hours a week.

Economics 43.462★

International Monetary Theory and Policy

International monetary theory and its implications for economic policy. Topics such as sources of disequilibrium and adjustment in the balance of payments under fixed versus flexible exchange rates, international capital movements, and international monetary reform.

Credit will not be given for both Economics 43.462★ and 43.460 (no longer offered).

Prerequisite: Economics 43.212★ and 43.213★, or 43.211★.

Day division: Lectures three hours a week.

Economics 43.465

Industrial Relations

An examination of various theories concerning industrial relations systems, human resource utilization and organizational maintenance and stress. Application of the core analytical disciplines (political science and economics) to the study of conflict resolution among management, workers and governments in the pluralistic environment of the firm. The operationality and policy significance of a number of royal commission reports and studies are examined in the light of these various theories of industrial and human relations.

Prerequisites: Economics 43.202★ and 43.203★, or 43.250★, 43.357★.

Day division: Lectures three hours a week.

Economics 43.467★

Monetary Theory I

This course is designed to provide the analytical tools used in discussions of monetary theory and policy. The foundations of monetary theory are emphasized as are the effects of monetary change on economic activity coming through classical, Keynesian and other modern money transmission mechanisms. The policy implications of the "optimum quantity of money", various estimates of the money supply and demand, difficulties of implementing policy in open and closed economies and in a growth context are also examined.

Credit will not be given for both Economics 43.467★ and 43.466 (no longer offered).

Prerequisite: Economics 43.202★ and 43.203★, or 43.201, and 43.212★ and 43.213★, or 43.211★.

Evening division: Lectures three hours a week.

Economics 43.468★

Monetary Theory II

A continuation of Economics 43.467★. This course will analyse in depth some past and current controversies in monetary theory particularly as they relate to policy issues.

Credit will not be given for both Economics 43.468★ and 43.466 (no longer offered).

Prerequisite: Economics 43.467★.

Evening division: Lectures three hours a week.

Economics 43.470

Comparative Economic Systems

A discussion of the structure and functioning of economic systems in theory and practice. Some criteria for evaluating economic performance are proposed. Contemporary economies such as Yugoslavia, France, Japan, China and the U.S.S.R. are examined.

Prerequisite: Economics 43.202★ or 43.201★.

Day division: Lectures three hours a week.

Economics 43.480

Research Seminar in Urban Economics

An enquiry into the internal dynamics of cities and inter-urban relationships primarily through directed research.

Prerequisites: Economics 43.202★ and 43.203★, or 43.201★, and 43.220.

Day division: Seminars three hours a week.

Economics 43.485

Introduction to Econometrics

Introduction to problems of structural estimation of economic models, single equation estimation and related problems, simultaneous estimation for interdependent systems of linear form, non-linear estimation, Monte Carlo experiments to derive small sample properties of estimators. Some project in structural estimation is undertaken or assigned.

Prerequisites: Economics 43.202★ and 43.203★, or 43.201★, 43.220, and Mathematics 69.107★ and 69.127★ or equivalents.

Evening division: Lectures two hours a week, laboratory one hour a week.

Economics 43.490

Honours Seminar

The seminar focuses on the use of basic economic theory as a tool to analyse economic problems and issues. Students meet regularly to work out assigned problems in class, to write examinations and/or to discuss assigned papers.

Open to Fourth-year Honours students with permission of the department.

Day and Evening divisions: Seminar three hours a week.

Economics 43.493★

Tutorial in Economics

An additional tutorial in economics may be taken subsequent to or concurrently with Economics 43.490.

Prerequisite: Permission of the department.

Day division.

Economics 43.494★

Tutorial in Economics

An additional tutorial in economics may be taken subsequent to or concurrently with Economics 43.490.

Prerequisite: Permission of the department.

Day division.

Economics 43.498

Honours Essay

Students taking Honours in Economics may write an Honours essay during their final year. This essay counts for one and a half course credits. Students work under an individual faculty adviser.

Prerequisite: Permission of the department.

Economics 43.499★

Comprehensive Examination

Prerequisite: Permission of the department.

First and Second terms.

Courses Planned for Summer School and Evening Division

The department attempts to offer the following courses each Summer: Economics 43.100, 43.202★, 43.203★, 43.212★, 43.213★, 43.220. Each year, availability of instructors permitting, at least one half course at the 300 level and a course at the 400 level will be offered. For summer 1982 courses, see 1982 Summer Session Calendar.

The department offers the following Evening courses each year: Economics 43.100, 43.202★, 43.203★, 43.212★, 43.213★, 43.220, plus a choice of optional courses that will vary from year to year depending upon projected enrolments and availability of instructors.

Department of English Language and Literature

Officers of Instruction

Chairman

D.J. Wurtele

Supervisor of Graduate Studies

R.D. Mathews

Majors and Honours Adviser

Michael Thompson

Deputy: H.P. Duchemin

Professors Emeriti

A.M. Beattie

L.A. Cormican

P. Cruttwell

G.B. Johnston

Professors

V.K. Chari

Michael Gnarowski

B.W. Jones

R.H. MacDonald

R.D. Mathews

R.L. McDougall

A.T. Tolley

G.J. Wood

D.J. Wurtele

Visiting Professor

J.I. Jackson

Associate Professors

D.A. Beecher

M.I. Cameron

Douglas Campbell

T.H. Coulson

H.P. Duchemin

M.J. Edwards

Barbara Garner

Faith Gildenhuys

Maureen Gunn

Charles Haines

J.J. Healy

T.J. Henighan

R.G. Laird

Barbara Lecker

C. Levenson

R.B. Lovejoy

Lindsay Mann

L.T.R. McDonald

A.D. McLay

T.J. Middlebro'

J.R. Morrison

J. Noonan

Kathleen O'Donnell

E. Padolsky

Ian Pringle

R.B. Rutland

M. Ryan

James Steele

Alistair Tilson

James Wilcox

Assistant Professors

A.W. Heidemann

R.L. Hogg

A.A. MacKinnon

George McKnight

T. Nollet

Michael Thompson

Adjunct Professor

L.D. Young

Writing Tutorial Service

Aviva Freedman

Major Programs

The Major in English consists of a minimum of six courses in English, as follows:

1. A First-year course in English, preferably English 18.162;

2. English 18.232;

3. Four additional courses in English which must include 18.242 or 18.352 (both may be taken if desired). English 18.268, English 18.291 and English 18.293 may not be counted towards the Major.

A Combined Major in English and another subject will include at least five courses in English. English 18.232 is required, along with either 18.242 or 18.352 (or in special cases approved alternatives). Both departments must approve a combined program.

English 18.268, English 18.291 and English 18.293 may not be counted towards a Combined Major.

Honours Programs

All students who meet the general University Honours requirements, and who have a grade-point average of at least 6.5 in English, will be admitted to, and permitted to continue in, the Honours program. Other applicants will be given individual consideration on application to the department. Honours students must have their programs approved at registration by a departmental adviser. The Honours program consists of twenty courses after Grade 13 (twenty-five after Grade 12), of which eleven must be in English, including the following:

1. A First-year course in English, preferably English 18.162;

2. English 18.232, 18.242 and 18.352;

3. A course in English literature to 1500 or English language;
4. A course in Shakespeare;
5. A course in Canadian literature.

Of the eleven courses at least three must be chosen from courses at the 300 or 400 level designated by the department as seminar courses or courses of independent study.

Combined Honours

Combined Honours programs may be arranged. Six courses in English are required, including:

1. A First-year course in English, preferably English 18.162;
2. English 18.232;
3. Either English 18.242 or 18.352.

Students may take both English 18.242 and 18.352. Of the six courses at least two must be chosen from courses at the 300 or 400 level designated by the department as seminar courses or courses of independent study. English 18.268, English 18.291 and English 18.293 may not be counted towards the English requirements for Combined Honours.

Combined Honours, English and Journalism

A Combined Honours program may be arranged in English and journalism. Candidates for the degree of Bachelor of Journalism, Combined Honours Journalism and English, take a total of twenty-one courses in four years. Candidates for the degree of Bachelor of Arts, Combined Honours English and Journalism, take a total of twenty courses in four years. The six required English courses are the same as for any other Combined Honours program in English.

Students who decide to take the special Honours project in the Fourth year in the School of Journalism, are required to take Journalism 28.498. In this case, the student would receive a Bachelor of Journalism degree, Combined Honours Journalism and English. Students who decide to do the Fourth-year project in the Department of English, take English 18.498. In this case, the student would receive a Bachelor of Arts degree, Combined Honours English and Journalism.

Academic Standing

In order to continue in the Major or Honours program, a student must attain a grade-point average of 4.0 or better in the First-year course in English. A grade-point average of at least 4.0 must be maintained thereafter in English courses.

Certificate in English Language and Composition

This is an in-service certificate intended primarily for practising teachers designed to upgrade their knowledge of those areas of language and of writing theory which underlie the new Ontario guidelines and support documents.

Admission requirement: a university degree or teaching certificate.

To receive the Certificate in English Language and Composition, students must meet the following requirements:

1. English 18.295;
2. English 18.297;
3. English 18.495;
4. Two course-credits chosen from the following: English 18.305, English 18.302, Linguistics 29.261★, Linguistics 29.264★, Linguistics 29.271★, Linguistics 29.420, a course approved by the department.

Note:

The same course cannot be counted towards both a degree and the certificate. If any of the courses required for the certificate have already been taken for a degree, then the student must choose an approved option to replace them. Not all the above-listed courses may be offered in any one year.

Graduate Program

The Department of English offers courses of study leading to the degree of Master of Arts. Students may choose a program consisting of course work and thesis or one consisting entirely of course work. The department offers a Doctor of Philosophy degree program specializing in Canadian literature. For further details consult the Graduate Studies and Research Calendar and the department's *Handbook of Advice for Graduate Students in English*.

Film Course and Writing Seminars in Poetry and Prose Fiction

The film course (English 18.268) and the writing seminars in poetry and prose fiction (English 18.291 and English 18.293) offered in the Department of English carry credit towards the total requirements for the Major and Honours degree and may be counted among the minimum eleven-course requirements of the Honours program. They cannot, however, be counted among the minimum six-course requirements of the Major program.

The Elements of Writing and Business Writing

The special writing courses (English 18.110★ and 18.111★) offered in the Department of English and listed by the School of Business as Management Studies 42.110★ and 42.111★ cannot be counted among the minimum requirements for the Major and Honours programs, including combined programs. These courses are open only to business students.

Reading Lists and Advice

Detailed reading lists will be available from the Department of English (1812 Arts Tower) after April 14.

Special Interest Courses

The department offers a number of courses designed to meet the needs of students outside the English programs.

1. *Classic Works of English and Continental Literature:*

English 18.101 is designed for all students who wish to broaden their knowledge of the culture of England and continental Europe. Works of Shakespeare, Chaucer, Swift and Byron are studied, along with works (in translation) of Boccaccio, Dante, Tolstoy, Flaubert and Ibsen.

2. *Writing:*

English 18.105 offers all students instruction and practice in essay writing as well as other forms of non-fiction prose.

3. *Literature and Related Subjects:*

A number of courses explore the relationship of literature to other fields of enquiry: English 18.207 (Literature and the Sciences), English 18.208 (Myth and Symbol), English 18.290 (Literature of the Self), English 18.302 (Children's Literature), and English 18.390 (The Literature of Existentialism).

4. *Areas of Special Literary Interest:*

English 18.202 (Comedy and Satire), English 18.209 (Greek and Latin Literature in Translation), English 18.303 (The English Novel), and English 18.364 (Modern Drama).

5. *Shakespeare:*

English 18.236 (Shakespeare) explores the imagination and achievement of the greatest writer in English.

6. *The Literature and Culture of English-Speaking Canada:*

English 18.282 offers a comprehensive overview of the growth and achievement of the literary tradition of English-speaking Canada.

Courses Offered

English 18.100

English Authors from Chaucer to T.S. Eliot

A study of significant works of English literature, presented as a general historical survey from the fourteenth to the twentieth centuries. In 1982-83 authors to be studied include Chaucer, Marlowe, Shakespeare, Donne, Milton, Pope, Swift, Fielding, Keats, Wordsworth, Browning, Dickens, Tennyson, Yeats, Eliot. Day and Evening divisions: Three hours a week.

English 18.101

English and Continental Texts

A study of works by English and continental writers. The list of authors to be read usually includes Dante, Boccaccio, Chaucer, Shakespeare, Byron, Flaubert, Tolstoy, Ibsen and O'Casey. Consult the instructor or the department for complete reading lists. The continental texts are read in translation. Day division: Three hours a week.

English 18.102

Form and Tradition

Open to all students. A course on significant literary forms, with the focus on the lyric poem, the short story and the novel. Not offered 1982-83.

English 18.105

Writing and Language

This course seeks to improve the writing of students from all disciplines through a study of the principles of logic, grammar, and rhetoric, and through the application of those principles in frequent writing assignments. Various forms of prose (e.g. scientific, expository, narrative, literary) are studied and practised. Day and Evening divisions: Three hours a week.

English 18.110★

The Elements of Writing

A course in composition: sentence coherence and variety, paragraph coherence, analysis of errors, effective style, revision techniques. For business students only. (Also listed as Management Studies 42.110★.) Day division, First term: Lectures and seminars three hours a week.

English 18.111★

Business Writing

Effective business communications. Reports, briefs, proposals, etc.: research, analysis of information, organization, layout, style, documentation. Letters: tone, writing with tact, analysis of audience. Oral presentations. For business students only. (Also listed as Management Studies 42.111★.)

Day division, First and Second terms: Lectures and seminars three hours a week.

English 18.162

Twentieth-Century Literature

For Major and Honours students, in the First year. Undeclared students may also enrol. An introduction to literary study, examining the poetry, drama, and fiction of the twentieth century, in a representative selection of English, American and Canadian authors. The relation between critical ideas and literary works will be emphasized. The course may include works by Lawrence, Conrad, Faulkner, Eliot, Yeats and Williams, and a selection of novels, plays, and poems. Day and Evening divisions: Lectures/seminar three hours a week.

English 18.188

Contemporary English-Canadian and French-Canadian Literature

This course, which is offered by faculty members from the English and French departments, provides a general introduction to and comparison of the two major literatures of Canada. Lectures are given in both English and French. Students are encouraged to use the French language for self-expression but need not do so. (Also listed as Canadian Studies 12.188 and French 20.188.)

Prerequisite: A basic reading knowledge of French. Day division: Three hours a week.

English 18.200★

Theatre Workshop I

A course dealing with the rudiments of theatrical performance: voice, movement, improvisation, interpretation. Exercises are based upon examples drawn from the classic and contemporary repertoires.

Prerequisite: A First-year course in literature and permission of the department.

Day division: Four hours a week.

English 18.201★

Theatre Workshop II

A course dealing with techniques of characterization, principles of ensemble performance, scene analysis for actors and directors, styles of performance. Exercises are based upon examples from the classic and contemporary repertoires.

Prerequisite: English 18.200★ or permission of the department.

Not offered 1982-83.

English 18.202

Comedy and Satire

A critical examination of the comic and satiric in English literature through a study of representative plays, novels and short stories. The theory of comedy and satire will be examined in relation to the texts: types, techniques and themes.

Prerequisite: Second-year standing.

Not offered 1982-83.

English 18.205

History of the Language

A course on the nature and development of the sounds, grammar and spelling of the English language, together with some study of its cultural and stylistic evolution.

Prerequisite: A First-year course in English or permission of the department.

Not offered 1982-83.

English 18.207

Literature and the Sciences

A course concentrating on certain points of intersection between literature and science, using texts from various periods and genres.

Prerequisite: Second-year standing.

Offered on I.T.V.

English 18.208

Myth and Symbol

A study of myth and its appearance in literature. The course explores the great myths which gave form to man's search for meaning, and which still strike a deep response in the psyche. A wide range of texts is used to demonstrate the nature and vitality of myth, in both its non-literary and literary forms.

Prerequisite: Second-year standing.

Day division: Lectures three hours a week.

English 18.209

Greek and Latin Literary Genres

A study through English translations of the various genres of Greek and Latin literature, especially those which influenced later European writing: epic, drama, the ode, pastoral poetry, satire. Offered in the Department of Classics as Classical Civilization 13.209.

Day division: Lectures two hours a week.

English 18.212

Old English

A study of Old English language and literature, including grammar and phonology, and translation of selections of Old English prose and poetry.

Prerequisite: A First-year course in English or permission of the department.

Not offered 1982-83.

English 18.222

Introduction to Middle English

An introductory study of Middle English language and literature.

Prerequisite: A First-year course in English or permission of the department.

Not offered 1982-83.

English 18.232

English Studies I

The required course for Second-year Honours and Major students. A selection of major authors from Chaucer to Milton is studied intensively, and their intellectual and artistic relationships emphasized.

Prerequisite: A First-year course in English or permission of the department.

Day and Evening divisions: Lectures/seminar three hours a week.

English 18.234

Drama in England until 1642

A study of the development of dramatic production and literature from the middle ages to the closing of the theatres in 1642. Reading of representative plays, excluding Shakespeare.

Prerequisite: A First-year course in English or permission of the department.

Not offered 1982-83.

English 18.236

Shakespeare

A close study of a selection of Shakespeare's plays; attention is also paid to his environment and his development as a dramatist.

Prerequisite: A First-year course in English or permission of the department.

Day and Evening divisions: Three hours a week.

English 18.242

English Studies II

A required course for Honours students in their Second year. Major students and Combined Major and Combined Honours students must take either this course or English 18.352, and may take both. The course covers the literature of the Restoration and the eighteenth century. Major authors to be studied generally include Dryden, Pope, Swift, Johnson and Blake.

Prerequisite: A First-year course in English.

Day and Evening divisions: Lectures/seminar three hours a week.

English 18.252

Victorian Poetry and Prose

The study of the major poetry and prose of the Victorian period.

Prerequisite: A First-year course in English.

Not offered 1982-83.

English 18.253

The Novel from Dickens to Conrad

A study of the English novel from the High Victorian period of Dickens, Thackeray, and Eliot to World War I.

Prerequisite: A First-year course in English or permission of the department.

Not offered 1982-83.

English 18.263

The Novel in the Twentieth Century

A study of twentieth-century American, British and Canadian novels.

Prerequisite: A First-year course in English.

Not offered 1982-83.

English 18.268

Forms and Conventions of the Cinema

This course examines the forms, structures, and stylistic conventions of the cinema. Attention is given to the development of a critical idiom suited to the description, analysis, and evaluation of film. (Also listed as Film Studies 19.268.)

Prerequisite: Film Studies 19.100 or a First-year course in English.

Day division: Three hours lecture and screening, one hour discussion groups.

English 18.272

Introduction to American Literature

An introduction to the major authors and traditions of American literature from the beginnings to the present.

Prerequisite: A First-year course in English or permission of the department.

Evening division: Three hours a week.

English 18.282

Canadian Literature

A survey of the development of Canadian literature in English from its nineteenth-century beginnings to the present.

Prerequisite: A First-year course in English or permission of the department.

Day and Evening divisions: Three hours a week.

English 18.290

Literature of the Self

A study of the forms, themes and meaning of autobiographical literature. Attention is paid to the history of autobiographical writing, and to the autobiography as a social document, but the main focus of the course is on autobiography as part of the modern search for the self.

Prerequisite: Second-year standing.

Not offered 1982-83.

English 18.291

Writing Seminar in Poetry

A workshop involving regular assignments in writing poetry and practical criticism based on this work. Enrolment in the Day division is limited. Details may be obtained from the department.

Prerequisites: A First-year course in English and permission of the department.

Not offered 1982-83.

English 18.292

Women and Literature

An exploration of the feminine perspective in literature as well as the changing role of women in society. A theoretical survey of relevant issues provides a general framework for the course; the main focus, however, is on selected literary texts. Both women authors and the feminine role in works of literature and in the society that produced them are studied.

Not offered 1982-83.

English 18.293

Writing Seminar in Prose Fiction

A workshop involving regular assignments in writing prose fiction and practical criticism based on this work. Enrolment is limited. Details may be obtained from the department.

Prerequisites: A First-year course in English and permission of the department.

Not offered 1982-83.

English 18.295

Introduction to the English Language

A course intended particularly as an in-service course for teachers of English and the Language Arts. The sound system of English in relation to English spelling; English vocabulary, grammar and syntax; stages in the acquisition of English as a first language, especially after age six; roles and uses of English in Canada; standard English pedagogical implications.

Prerequisite: Admission to the Certificate in English Language and Composition program or permission of the department.

Not offered 1982-83.

English 18.297

Writing: Theory and Practice

A study of the process of writing in theory and practice. Reading and discussions focus on the nature of the composing process; the development of writing abilities from the elementary years to maturity; the interrelationship between talking and writing; strategies for encouraging growth in writing. In addition to examining recent research findings and pertinent theoretical texts, students engage in the composing process themselves in order to ground the theory and research findings in their own experiences as writers. (Also listed as Linguistics 29.297.)

Prerequisite: Second-year standing or enrolment in the Certificate Program in English Language and Composition.

Evening division: Three hours a week.

English 18.300

Literary Criticism from Aristotle to the Present

Problems and questions in literary criticism.

Prerequisite: English 18.232.

Day division: Seminar two hours a week.

English 18.302

Children's Literature

An historical and critical study of children's literature. The course introduces students to critical analysis and assessment of a number of acknowledged classics of children's literature. The organization of works studied will be generic, with myth, legend, folklore, fantasy, poetry, drama, allegory, fable, and fiction being the principal forms to be considered. A detailed reading list is available from the department. Enrolment is limited.

Prerequisite: Second-year standing.

Day and Evening divisions: Three hours a week.

English 18.303

The English Novel

The development of the art of fiction in English literature, from its beginning in the eighteenth century, through the major Victorian novelists, to the beginning of the twentieth century.

Prerequisite: A First-year course in English or permission of the department.

Day division: Lectures three hours a week.

English 18.304

Drama to the Nineteenth Century

A study of selected significant plays from the classical to the romantic period of world drama, including classical and Elizabethan tragedy and comedy, Restoration comedy, medieval mystery plays and Japanese Noh drama. A few modern plays by such authors as Ibsen, Brecht, Sartre and Stoppard are used to illustrate the influence of earlier world drama on modern theatre.

Prerequisite: A First-year course in English.

Day division: Seminar two hours a week.

English 18.305

Style, Imagination and Judgment

An examination of the nature of good and bad writing. The category of imagination as a criterion for judging prose. Conditions favourable to the production of good writing. The cultural effects of bad writing.

Prerequisite: Third-year standing or enrolment in the Certificate Program in English Language and Composition.

Evening division: Lecture three hours a week.

English 18.322

Middle English

A study of the English language and literature between the Norman Conquest and the fifteenth century. In 1982-83 the course is principally concerned with the works of Geoffrey Chaucer.

Prerequisite: English 18.232 or permission of the department.

Evening division: Seminar two hours a week.

English 18.327

Chaucer and the Allegorical Tradition

A study of the works of Chaucer and Spenser, principally *The Canterbury Tales* and *The Faerie Queene*, together with contemporary background and current critical writings.

Prerequisite: English 18.232.

Not offered 1982-83.

English 18.336

Milton

An intensive study of the poetry and prose of Milton, combined with an examination of the intellectual background of his work and his age.

Prerequisite: English 18.232.

Not offered 1982-83.

English 18.337

Seventeenth-Century Literature

This course is devoted to a study of five major writers of the seventeenth century: Donne, Herbert, Marvell, Milton, and Jonson. In addition, some other writers in prose, such as Bacon, Bunyan, Burton, Andrewes, and Browne, are studied in less detail. These writers represent the principal trends and aspects of the age — the Anglo-Catholic, Puritan and humanist — and the literary forms which were associated with them. Prerequisite: English 18.232.

Day division: Seminar two hours a week.

English 18.338

Sixteenth-Century Literature

An examination of various English authors of the sixteenth century, including Wyatt, Surrey, Sidney, Spenser, Donne, Jonson, and certain other writers to be selected by the instructor.

Prerequisite: English 18.232.

Not offered 1982-83.

English 18.342

Eighteenth-Century Literature

Detailed study of authors and movements of the period 1660 to 1780.

Prerequisite: English 18.242 or permission of the department.

Not offered 1982-83.

English 18.343

The Novel from Defoe to Scott

A study of selected novelists of the eighteenth century and earlier nineteenth century.

Prerequisite: English 18.242 or permission of the department.

Day division: Seminar two hours a week.

English 18.344

Restoration and Eighteenth-Century Drama

A seminar in the development of drama in London from 1660 through the eighteenth century.

Prerequisite: English 18.242 or permission of the department.

Not offered 1982-83.

English 18.348

Studies in Romanticism

A study of major writers, including Wordsworth, Coleridge, Blake, Byron, Keats and Shelley.

Prerequisite: English 18.232, 18.242 or permission of the department.

Day division: Seminar two hours a week.

English 18.351

Studies in the Major Victorian Poets

A detailed examination of the poetry of Tennyson, Browning and Arnold, with some attention to related poems of other Victorian authors.

Prerequisite: English 18.232 or permission of the department.

Day division: Seminar two hours a week.

English 18.352

English Studies III

A required course for Honours students. Major, Combined Major and Combined Honours students must take either this course or English 18.242. The course covers the literature of the nineteenth century. Past authors have included Wordsworth, Keats, Tennyson, Browning, Dickens, Eliot and Hardy.

Prerequisite: English 18.232.

Day and Evening divisions: Lectures/seminar three hours a week.

English 18.358

Studies in Major Nineteenth-Century Thinkers

Readings in nineteenth-century prose, with particular emphasis on Carlyle, Mill, Newman, Arnold and Ruskin.

Prerequisite: English 18.232 or permission of the department.

Day division: Seminar two hours a week.

English 18.361

Twentieth-Century Poetry

An introduction to the poetry of Great Britain, the United States and Canada in the twentieth century.

Prerequisite: A First-year course in English or permission of the department.

Day division: Lectures three hours a week.

English 18.362

Twentieth-Century Authors

The poetry, drama, and fiction of the Anglo-Irish Literary Resurgence (1880-1940), with special consideration of works by Lady Gregory, Yeats, Synge, O'Casey, Shaw and Joyce.

Prerequisite: A First-year course in English or permission of the department.

Day division: Seminar two hours a week.

English 18.363

Twentieth-Century British Fiction

A study of twentieth-century British fiction. The specific authors may vary from year to year. Consult the department's reading lists.

Prerequisite: A First-year course in English or permission of the department.

Not offered 1982-83.

English 18.364

Modern Drama

An examination of the significant trends that have shaped the development of modern drama from Ibsen and Strindberg to such contemporary dramatists as Beckett, Albee, and Pinter. Among the movements discussed and illustrated from relevant plays are realism, symbolism, expressionism, epic theatre, surrealism, theatre of cruelty and theatre of the absurd.

Prerequisite: A First-year course in English or permission of the department.

Day division: Lectures three hours a week.

English 18.367

Contemporary Texts

A study of twentieth-century works of literature.

Prerequisite: A First-year course in English or permission of the department.

Not offered 1982-83.

English 18.368

Studies in the Novel After World War II

A study of American, British and Canadian novels.

Not offered 1982-83.

English 18.371

Studies in American Poetry

A study of twentieth-century American poetry to the 1970s. Attention is given to poetic movements and influences.

Prerequisite: English 18.272 or permission of the department.

Not offered 1982-83.

English 18.373

Studies in American Fiction

A study of the American novel to the 1970s including Wharton, Dos Passos, Stein, Fitzgerald, Faulkner, Hemingway, Barth, Anais Nin, Nabokov, Kerouac, Ferlinghetti, Pynchon, Styron, Joyce Carol Oates, Hawkes, Vonnegut, Brautigan, and Tom Robbins. Attention is given to fictional theory, movements, and influences.

Prerequisite: English 18.272 or a course in the English novel.

Day division: Seminar two hours a week.

English 18.378

Studies in American Literature

A study of the intellectual roots of American literature and culture: Puritanism, Enlightenment, Transcendentalism.

Prerequisite: English 18.272.

Day division: Seminar two hours a week.

English 18.381

Studies in Canadian Poetry

The course concerns itself with major trends and figures from the beginning until our time. It is designed to permit students to gain some familiarity with the whole tradition of English-Canadian poetry with some comparative reference to the poetry of Quebec.

Prerequisite: English 18.282 or permission of the department.

Day division: Seminar two hours a week.

English 18.383

Studies in Canadian Fiction

A study of selected Canadian novels and the development of Canadian fiction.

Prerequisite: English 18.282 or permission of the department.

Day division: Seminar two hours a week.

English 18.387

Selected Topic in Canadian Literature

A seminar dealing with the development of the short story in Canada with specific reference to, and critical discussion of, major examples of the genre.

Prerequisite: English 18.282 or permission of the department.

Not offered 1982-83.

English 18.390

The Literature of Existentialism

A study of the origins, development, and principal characteristics of existentialist literature as the paramount expression of the writer's concern with *la condition humaine*.

Prerequisite: Permission of the department.

Not offered 1982-83.

English 18.394★

Theatre and Society

A study of the theatre in its social context: two periods of theatre history are studied to illustrate the relations among elements such as theatrical forms and conventions, theatre buildings, theatre occasions and theatre theories, as they occur within specific social circumstances.

Prerequisite: A First-year course in literature or permission of the department.

Day division: Seminar three hours a week.

English 18.398

Independent Study

Research under the supervision of a member of the department for students in the Third year who have declared Major or Honours standing in English. Projects may be organized on an individual basis, or as a special seminar directed by a member of the department. The course may be taken only once. In the case of the individual project, an essay of approximately 8,000 words is the usual written assignment. A written request, outlining the project, with the approval of the supervisor, must be submitted to the co-ordinator by the last day for course changes. Entry into this course, when done as an individual study, is limited to students with a B+ average in their English courses.

Note: This course may be used to fulfil one of the seminar requirements for the Honours degree, but it cannot fulfil an area requirement or substitute for English 18.232, 18.242, or 18.352.

English 18.401

Studies in Poetry

A seminar on lyric poetry, in the light of twentieth-century critical theory. Students read a number of lyric poems from different periods and consider the usefulness of various critical approaches to the poems. Students are encouraged to develop their own informed critical principles for analysing, appreciating, and evaluating lyric poetry.

Prerequisite: Permission of the department.

Not offered 1982-83

English 18.403

Seminar in the English Novel

A seminar for the study and discussion of the art of the novel as exemplified by major works of fiction. Study includes varieties of form and pattern, modes of narration, imagery and symbolism, realism, and naturalism. Prerequisite: Honours students; others by permission of the department.
Not offered 1982-83.

English 18.404★

Theatre Theory and the Practice of Theatre Criticism

A seminar in which students study classic texts of theatre theory and apply them to the writing of critiques of selected local theatre productions. Prerequisite: A course in drama or theatre or permission of the department.
Not offered 1982-83.

English 18.411

Old English Poetry

Translation and study of the text of Beowulf and the Finnsburg Fragment. Prerequisite: Permission of the department.
Not offered 1982-83.

English 18.418

Old Norse

An introductory study of the Old Norse language and literature. Prerequisite: English 18.212 or an equivalent course in Old English, or permission of the department.
Not offered 1982-83.

English 18.436

Seminar in Shakespeare

A seminar for Honours students, concentrating on critical and scholarly approaches to Shakespeare's work. Prerequisite: Honours students; others by permission of the department.
Day division: Seminar two hours a week.

English 18.458

Special Studies in Nineteenth-Century Literature

A study of a special topic in nineteenth century literature. Prerequisite: Third- or Fourth-year standing in English, or permission of the department.
Not offered 1982-83.

English 18.477

Major American Authors

A detailed examination of the thought and work of a selected group of significant American writers. Prerequisite: English 18.272.
Not offered 1982-83.

English 18.483

Seminar in Canadian Fiction

A study of the Quebec and English Canadian imaginations, especially through a comparison of literary works and critical comment. Students will read and discuss historical ideas, literary concepts, major works of fiction and works of special significance. Reading knowledge of French is not required, but is useful. Prerequisites: English 18.282 or 18.383 and permission of the department.
Day division: Seminar two hours a week.

English 18.487

Special Topic in Canadian Literature

An advanced course for students interested in theatre, and for Major and Honours students in English. Prerequisite: Permission of the department.
Not offered 1982-83.

English 18.488

Studies of the Literature of the Commonwealth

In 1982-83 a study of Caribbean literature, represented by poetry, novels and dramas drawn from the work of such writers as Naipaul, Brathwaite, Mais and others, and African literature, with the emphasis on the work of a fairly wide selection of novelists. Caribbean themes to be considered include concerns with race, language, identity, pluralism and the legacy of slavery; African themes include decolonization, war, post-independence problems and political questions. Prerequisite: Permission of the department.
Day division: Seminar two hours a week.

English 18.495

Research Seminar in English and Education

Investigation of recent developments in language study, rhetoric and composition, and studies of the literary imagination and their implications for the teaching of English. (Also listed as Linguistics 29.495.) Prerequisite: English 18.295 and 18.297 or permission of the department.
Evening division: Seminar two hours a week.

English 18.498

Independent Study

A course for independent research and writing, under the supervision of a member of the department, open to students in the Fourth year of Honours with a B+ standing in their English courses. An essay of approximately 10,000 words is the usual written assignment. A written request, outlining the project, with the approval of the supervisor, must be submitted to the coordinator by the last day for course changes. Note: This course may be used to fulfil one of the seminar requirements for the Honours degree, but it cannot fulfil an area requirement or substitute for English 18.232, 18.242, or 18.352. For students in Combined Honours, however, it is considered to be the equivalent of an Honours Essay.

English 18.499

Seminar

For Honours students in the Fourth year and others by permission. The course considers the role of English studies in a complex system of higher education.

Day division: Seminar two hours a week.

Courses Planned for Summer School and Evening Division

An effort will be made to offer as wide a selection as possible of core and required courses in the Evening division of the Winter session, and in the Summer session. Please consult the department for listings. The list of Summer courses will not be available until March.

English as a Second Language

Officers

Director

Janice Yalden (*Centre for Applied Language Studies, see p. 437*)

Instructors

Waltraud O'Brien

Pat Pappas

Barbara Sandilands

Diane Sinclair

Lynne Young

General Information

The courses are designed to meet the needs of students who are qualified for admission to any faculty but whose native language is not English, and whose scores on the Carleton English Proficiency test or other tests recognized by the University indicate they would encounter serious difficulties in a full academic program. No student who has native or native-like command of English is permitted to take any of these courses.

The intensive course offered at the elementary level concentrates on the development of oral self-expression and comprehension of spoken English. Many students taking this course have a "bookish" knowledge of the language, at a basic level, but can hardly speak or understand when spoken to. All courses at the intermediate and advanced levels give much more emphasis to reading and writing, as the aim of these courses is preparation for university/professional work. In the advanced courses, most of the class time is devoted to developing skill in written English.

Placement in these courses is determined by a one-and-a-half hour test administered by the staff of the ESL unit. No challenges for credit can be made for credit in ESL nor in any other language offered at the University.

English as a Second Language 21.150 and 21.155 cannot *both* be taken for credit, nor can 21.190 and 21.195.

Courses Offered

English as a Second Language 21.115

Intensive Elementary English

For students who have little knowledge of English. This level emphasizes reinforcement of oral skills, though the development of reading and writing also receive attention.

Day division, First term and Second term: Fifteen hours a week plus tutorials and laboratory work.

English as a Second Language 21.150

Intermediate English

For students who have acquired a basic knowledge of English structures and some oral fluency. This level concentrates on expanding reading and writing skills at the sentence and paragraph levels. Minimal work in oral production.

Evening division: Three hours a week plus laboratory work.

English as a Second Language 21.155

Intensive Intermediate English

For students who have acquired a basic knowledge of English structures and some oral fluency. This level concentrates on expanding reading and writing skills at the sentence and paragraph levels. Minimal work in oral production.

Day division, First term and Second term: Fifteen hours a week, plus tutorials and laboratory work.

English as a Second Language 21.190

Advanced English

For students with a good command of both oral and written English who wish to improve their skill further and to prepare for university work. Intensive reading using prepared material. Extensive reading of unedited texts. Frequent compositions and short essays are required. Oral presentations in preparation for seminar work.

Evening division: Three hours a week, plus laboratory work.

English as a Second Language 21.195

Intensive Advanced English

For students with a good command of both oral and written English who wish to improve their skill further and to prepare for university work. Intensive reading using prepared material. Extensive reading of unedited texts. Frequent compositions and short essays are required. Oral presentations in preparation for seminar work.

Day division, First term and Second term: Fifteen hours a week, plus tutorials and laboratory work.

English as a Second Language 21.196★

Advanced Writing for English as a Second Language

A course designed to improve the writing skills of students whose native language is not English. Special attention will be given to the particular types of writing required of students in a university. Students are expected to complete regular and frequent writing assignments. The course is intended for students whose speaking, listening and reading skills are already at a university level and for those enrolled concurrently in English as a Second Language 21.195.

Day division, Second term: Three hours a week.

Officers of Instruction

Chairman

Christopher G. Faulkner

Professor

Peter Harcourt

Associate Professors

Christopher G. Faulkner

Patrick MacFadden (*Journalism*)

Brian Nolan (*Journalism*)

Assistant Professors

Mark Langer

George McKnight

Zuzana Pick

General Information

Film studies is an academic discipline concerned with the history, criticism, theory and practice of the cinema both as an art form and as a documentary record of our time. The cinema is a source of pleasure and knowledge, and its study should form a part of one's cultural education. The program will enable the student to develop a critical faculty appropriate to intelligent understanding of the cinema by approaching its study as a scholarly activity which rewards systematic research, analysis and exposition.

In designing the curriculum the department has sought both integration and progressive development. A careful curricular development will ensure intellectual growth through either a Major or Honours program devoted to the study of film. While the courses have been articulated together, they remain distinct enough to permit a number of related intellectual approaches to the study of film, and to enable those approaches to be related to work in other disciplines.

Major Programs

All students who elect film studies as a Major subject must have their program approved by a member of the Film Studies Department. The Major in film studies consists of a minimum of six courses in film studies, as follows:

1. Film Studies 19.100.
2. Two courses in film studies at the 300 level, one of which must be either Film Studies 19.300 or 19.368.
3. Three other courses in film studies.

Combined Majors

Combined Majors programs may be arranged with other departments in the Faculties of Arts or Social

Sciences. Both departments must approve a combined Majors program.

A combined Major in film studies and another subject includes at least five courses in film studies, as follows:

1. Film Studies 19.100.
2. Two courses in film studies at the 300 level, one of which must be either Film Studies 19.300 or 19.368.
3. Two other courses in film studies.

Honours Program

All students who meet the general University Honours requirements, and who have a grade-point average of at least 6.0 in film studies, will be admitted to, and permitted to continue in, the Honours program. Other applicants will be given individual consideration on application to the department. Honours students must have their program approved by a departmental adviser.

Honours in film studies consists of a minimum of nine courses in film studies as follows:

1. Film Studies 19.100.
2. Film Studies 19.300 and Film Studies 19.368.
3. Two courses in film studies at the 400 level.
4. Four other courses in film studies.

Combined Honours

Combined Honours programs may be arranged through the departmental adviser. Both departments must approve a Combined Honours program. A Combined Honours in film studies and another subject includes at least seven courses in film studies, as follows:

1. Film Studies 19.100.
2. Film Studies 19.300 and 19.368.
3. One course in film studies at the 400 level.
4. Three other courses in film studies.

All film studies Majors, Combined Majors and Honours students are required to learn how to operate and maintain standard 16mm viewing equipment.

Courses Offered

Film Studies 19.100

Introduction to Film Studies

An introduction to the study of film. Consideration is given to the nature of the medium, audience perception, historical and technical development of the cinema, and problems of theory and critical method.

The course focuses on four specific areas: (a) style and technique, (b) a period in film history, (c) the film maker, and (d) film genres.

Day and Evening divisions: Lecture and screening three hours a week, discussion one hour a week.

Film Studies 19.215

The Documentary

This course examines the work of individual film makers, of documentary styles, and of organizations and institutions in the context of the history of documentary film making. Non-fiction films other than documentaries may be considered. (Also listed as Journalism 28.215.)

Prerequisite: Film Studies 19.100 or permission of the department.

Day division: Lecture and screening three hours a week.

Film Studies 19.220

National Cinema

This course examines the film production of specific countries in order to determine the themes, the styles, and the character of a national cinema. In 1982-83 the course will concentrate on Germany and Japan.

Prerequisite: Film Studies 19.100.

Lecture and screening three hours, lecture one hour.

Film Studies 19.228

The American Cinema

A study of the American cinema as a cultural force, a social document and a corporate industry. The course examines the characteristic features of this cinema such as the major production companies, the star system, classic genres such as the western and thriller, as well as works of individual film makers.

Prerequisite: Film Studies 19.100.

Day division: Lecture and screening three hours a week, lecture one hour a week.

Film Studies 19.240

The Film Maker

A detailed study of the themes, the characteristic style, development and influence of several directors.

Prerequisite: Film Studies 19.100.

Not offered 1982-83.

Film Studies 19.268

Forms and Conventions of the Cinema

This course examines the forms, structures, and stylistic conventions of the cinema. Attention is given to the development of a critical idiom suited to the description, analysis, and evaluation of film. (Also listed as English 18.268.)

Prerequisite: Film Studies 19.100 or a First-year course in English.

Day division: Lecture and screening three hours a week, discussion one hour a week.

Film Studies 19.300

Aspects of Film History

A study of the major histories of film. Special attention is paid to the historiographical assumptions, the critical judgments, and the cultural values that have affected past and present evaluations of the cinema.

Prerequisite: A Second-year course in film studies or permission of the department.

Day division: Lecture and screening three hours a week, lecture one hour a week.

Film Studies 19.328

The Canadian Cinema

A critical examination of Canadian film, English and French. The course relates the Canadian cinema to other aspects of Canadian culture, and examines the conditions of production, distribution, and exhibition that have affected film making in this country.

Prerequisite: Third-year standing or permission of the department.

Evening division: Screening three hours a week, lecture two hours a week.

Film Studies 19.333

Film and Society

An examination of film in relation to social and intellectual developments of the twentieth century. The ways in which the cinema has both shaped and been shaped by some of these developments are considered. (Also listed as Journalism 28.333.)

Prerequisite: Film Studies 19.100, or Third-year standing.

Day division: Lecture and screening three hours a week, lecture one hour a week.

Film Studies 19.368

Film Theory and Criticism

This course investigates the assumptions which underlie the practice of film criticism, and through an examination of the major film theories, enquires into the basic aesthetics of film.

Prerequisite: A Second-year course in film studies or permission of the department.

Day division: Screening three hours a week, seminar two hours a week.

Film Studies 19.400

Modes of Historical Research

This course develops the skills necessary for individual research in the field of film history.

Prerequisite: Film Studies 19.300 or permission of the department.

Film Studies 19.468

Problems in Contemporary Film Theory

A detailed study of contemporary film theory. The French and Italian contribution to the areas of structuralism, semiology, and psychoanalysis are examined in detail, along with their influence on British, American and Canadian theories.

Prerequisite: Film Studies 19.368.

Not offered 1982-83.

Film Studies 19.490

Special Topic

This course offers selected topics in film studies not ordinarily available in the regular course program. The choice of topic or topics will vary at least every two years and will be announced well in advance of the registration period. In 1982-83 the topic will be: The Structure of Film.

Prerequisite: Fourth-year standing, or permission of the department.

Day division: Screening three hours, seminar two hours.

Film Studies 19.495

Independent Study

A research course for selected students who wish to study a topic of particular interest. An essay of 6,000 to 8,000 words is the usual assignment. The course may only be taken once and is available to students in the Fourth year only. Projects must be organized on an individual basis with a member of the Film Studies Department and approved by the chairman. A written request outlining the project must be submitted by the last day for course changes. The department encourages projects on film programming, distribution and exhibition.

Prerequisite: Permission of the department and Fourth-year standing.

Graduate Study

While Film Studies does not offer a graduate program, a graduate level course, Canadian Cinema 19.528, is taught by a member of the department through the Institute of Canadian Studies. Further information is available in the Calendar of the Faculty of Graduate Studies and Research.

French Language Instruction

A section of French 20.108, an advanced language course for non-French majors, has been designed especially for film studies students. Films and video tapes made in France and Quebec will be available for study. Further information is available from the course co-ordinator or from the Film Studies Department.

Summer and Evening Study

Film Studies 19.100 will be offered every year during Summer Evening and Winter Evening divisions. In addition, a different upper level course will be offered each year during the Winter Evening division. It may not be possible, however, to obtain a degree in film studies through the Summer or Evening divisions alone.

Department of French

Officers of Instruction

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S. Robinson

Assistant Chairman

E.N. Zimmerman

Supervisor of Major Studies

E.F. Kaye

Supervisor of Honours Studies

E.N. Zimmerman

Supervisor of Graduate Studies

M. Gaulin

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H.P. Clive

O. Condemine

A. Elbaz

C.P. Fleischauer

E.F. Kaye

P. Laurette

S. Sarkany

J.S. Tassie

P. van Rutten

Associate Professors

F. Cousin

R. Galliani

M. Gaulin

A. Halsall

J. Miquet

P. Smart

D.W. Smith

E. Voldeng

E.N. Zimmerman

Assistant Professors

J. Kealey

S. Robinson

J.-J. van Vlasselaer

Senior Lecturer

W.M. Fraser

Instructors

V. Basseville

B. Burke

G. Riser

D. Rosse

A. Ruprecht

General Information

Carleton University is situated in a bilingual community and students are encouraged to take advantage of the multiple opportunities for practical appreciation of the language. Radio, television, cinema, stage, the press and everyday conversation are at hand to supplement academic course work. The French department has a special housing service which allows students to live with francophone families. Classes are conducted in French unless otherwise indicated. The department also has at its disposal a fully equipped language laboratory.

English-speaking students who wish to graduate with a Major or an Honours standing in French are normally required to pass an oral examination testing their proficiency in spoken French. The examination takes place at the beginning of their final year, with the option of repeating it at the end of that year.

Student Exchanges

The Department of French has two student exchanges, one with the *Université du Québec* in Trois-Rivières, and the other with the *Centre Universitaire de Savoie* in Chambéry, France. These exchange programs make it possible for a maximum of six English-speaking Honours students (three of whom go to Québec and three to France) to spend their Third year in an immersion milieu. Financial assistance is also available. For more information please consult the Chairman of the department.

First Year Programs: Honours and Majors

Students must acquire one credit in language and one credit in literature as follows:

Language requirement (one credit)

A student wishing to do Major or Honours work in French takes French 20.111 (for Anglophones) or 20.112 (for Francophones).

Literature requirement (one credit)

The student also takes one of the following: French 20.161, 20.162 or 20.163.

Note:

Honours students intending to choose the language-linguistics concentration would be well advised to take the required course Linguistics 29.100 during their First year.

Major Programs

1. Major in French

The following program will help students to consolidate their knowledge of French grammar and to gain a comprehensive view of various aspects of French and French-Canadian literature.

The program consists of four credits beyond the common First year.

In the Second year students normally take French 20.211 (for Anglophones) or 20.212 (for Francophones) and two half-courses in literature chosen from the series French 20.261★ to 20.268★.

In the Third year students normally take French 20.312, and one literature course chosen from the series French 20.361 to 20.367 or exceptionally and only with permission, 20.461 to 20.467.

Students should note that at least one of the literature credits must be obtained in a course or courses with a French content, and at least one in a course or courses with a French-Canadian content. The literature credit taken in First year can be counted in this context.

2. Combined Major

Combined Major programs are available in French and other modern or classical languages, linguistics, or with another discipline in the humanities or social sciences.

The program consists of three credits beyond the common First year.

In the Second year students normally take French 20.211 (for Anglophones) or 20.212 (for Francophones) and two half-courses in literature chosen from the series French 20.261★ to 20.268★.

In the Third year students normally take either French 20.312 or a literature course chosen from the series French 20.361 to 20.367 or, exceptionally and only with permission, French 20.461 to 20.467.

Students should note that at least one of the credits in literature must be in a course or courses with a French content, and at least one in a course or courses with a French-Canadian content. The literature credit taken in First year can be counted in this context.

Honours Programs

Several Honours programs are available. Course patterns are designed to assure a balanced appreciation of French and French-Canadian literature, with competence in oral and written expression in the French language. Interested candidates will note the general regulations governing Honours on pp. 96-98.

Honours in French

This program is particularly suitable for students intending to pursue graduate studies in the field of romance languages, literature and related fields.

Students in the Honours program must declare their concentration in the Second year. There are two areas of concentration in the French Honours program:

Concentration A:

This program consists of six credits in literature and two credits in French language and linguistics beyond the common First year. Two credits are also taken in one language other than French or English. Students who already have the knowledge of a third language and can furnish appropriate proof may be exempted, in whole or in part, from this requirement.

The two credits in French language and linguistics are chosen from French 20.211 (for Anglophones), 20.212 (for Francophones), French 20.231 to 20.233★, 20.312, 20.331 to 20.334★, 20.431 to 20.435, with at least one credit at the 300/400 level.

The six credits in literature are normally chosen as follows:

Second Year: French 20.270★ and three half courses from the series French 20.261★ to 20.268★;

Third Year: two courses from the series French 20.361 to 20.367;

Fourth Year: two courses from French 20.434 and the series 20.461 to 20.467.

Students should note that two of the literature credits must be obtained in courses with a French content, and two in courses with a French-Canadian content. The literature credit taken in First year can be counted in this context.

Concentration B:

This program consists of six credits in French language and linguistics and two credits in literature beyond the common First year. Students are furthermore required to take Linguistics 29.100 and must obtain one credit in a language other than French or English. Students who already have the knowledge of a third language and can furnish appropriate proof may be exempted from the language credit requirement.

The two credits in literature are selected as follows: two half-courses chosen from the series French 20.261★ to 20.268★; one course chosen from the series French 20.361 to 20.367 or 20.461 to 20.467.

The six credits in French language and linguistics are normally taken as follows:

Second Year: French 20.211 (for Anglophones) or 20.212 (for Francophones), French 20.232★ and a course chosen from French 20.231, 20.233★, 20.331 to 20.334★;

Third Year: two credits from the series French 20.312 to 20.334★;

Fourth Year: two courses, chosen from French 20.431 to 20.435.

No more than two credits from the series French 20.231, 20.331, 20.431 may count towards the requirements for Honours in French.

Students should note that one of the literature credits must be obtained in a course or courses with a French content, and one in a course or courses with a French-Canadian content. The literature credit taken in First year can be counted in this context.

Combined Honours

Combined Honours programs are available in French and English, German, history, Latin, linguistics, political science, Russian or Spanish, and with other departments by arrangement.

The Honours programs combining two languages prepare the student either for graduate work or for the Ontario College of Education courses leading to the Interim High School Assistant's Certificate Type A, and must be planned in close consultation with the departments concerned. The combined programs with history or political science are suited for various kinds of public careers.

Two areas of concentration have been created in the Combined Honours program:

Concentration C:

This program consists of four credits in literature and one credit in French language and linguistics beyond the common First year.

The one credit in French language and linguistics is chosen from French 20.211 (for Anglophones), 20.212 (for Francophones), French 20.231 to 20.233★.

The four credits in literature are normally chosen as follows:

Second Year: two half-courses from the series French 20.261★ to 20.268★;

Third Year: one course from the series French 20.361 to 20.367;

Fourth Year: two courses, from French 20.434 and the series French 20.461 to 20.467.

Students should note that at least one and a half of the literature credits must be obtained in courses with a French content, and at least one and a half in courses with a French-Canadian content. The literature credit taken in First year can be counted in this context.

Concentration D:

This program consists of four credits in French language and linguistics and one credit in literature beyond the common First year. One credit is also taken in Linguistics 29.100.

The one credit in literature consists of two half-courses from the series French 20.261★ to 20.268★ or, with permission, a course chosen from the series French 20.361 to 20.367, or from French 20.461 to 20.467, or the course French 20.434.

The four credits in French language and linguistics are normally chosen as follows:

Second Year: French 20.211 (for Anglophones) or 20.212 (for Francophones);

Third Year: one credit from the series French 20.312 to 20.334★;

Fourth Year: two credits from the series French 20.431 to 20.435.

No more than two credits from the series French 20.231, 20.331, 20.431 may count towards the requirements for Honours in French.

Students should note that at least one-half credit in literature must be obtained in a course with a French content, and at least one-half credit in a course with a French-Canadian content. The literature credit taken in First year can be counted in this context.

Certificate in French Language Studies

This is a six-credit undergraduate certificate designed for part-time students wishing to perfect their spoken and written French. Candidates for the certificate are also encouraged to investigate undergraduate degree programs offered by the University. Courses taken for the certificate are normally creditable towards a Bachelor of Arts degree. Such a degree program will normally require that at least five of the courses required for a Bachelor of Arts degree be completed after the awarding of the certificate.

Admission Requirements

1. Senior matriculation with a 60% overall average, or mature matriculation; and
2. Facility in French to the completion of French 20.102. Candidates lacking this prerequisite will be expected to complete French 20.102 or equivalent before entering the program. Candidates already fluent in French to the level of French 20.111 or 20.112 will be required to take three full credits beyond the 200 level. Candidates for the certificate program will be required to pass a placement examination upon entry.

Course Requirements

The following courses or combinations of courses are required.

For candidates with the normal prerequisite:

1. French 20.111 or French 20.112;
2. French 20.211 or French 20.212;

3. French 20.231;
4. French 20.232★ and French 20.233★;
5. French 20.312 or French 20.332 or French 20.333★ and French 20.334★;
6. One of French 20.331, French 20.431, French 20.432, or French 20.433.

For candidates with knowledge of French to the level of French 20.111:

1. French 20.211 or French 20.212;
2. French 20.231;
3. French 20.232★ and French 20.233★;
4. One of French 20.312, French 20.332, or French 20.333★ and French 20.334★;
5. French 20.331 or French 20.431;
6. French 20.432 or French 20.433.

Graduate Program

The department offers studies leading to the M.A. degree. Emphasis is placed on work in specialized fields, a particular author or period, and research on problems of literary history. For further information please consult the Graduate Studies and Research Calendar.

Summer Language Program

The department offers three immersion courses in French each summer. Supplementary activities and opportunities for language practice make for a total immersion atmosphere. These courses are French 20.101, 20.107 and 20.109, and each course provides two credits. Five hours class time a day. Offered in the Summer division only. Registration through French Placement.

The department also offers four intensive language courses, French 20.100, 20.102, 20.108 and 20.111. These courses utilise the same methodology as in the Winter session, but outside activities make the courses more intensive. Registration through the French Placement of the Summer Day division. French 20.100 requires three hours class time in addition to lunch in French, French 20.102, 20.108, 20.111 require two hours class time and outside activities.

Courses Offered

French Placement for Language Students

Students who have not previously taken a language course in the department and who wish to enrol in French 20.100, 20.101, 20.102, 20.103, 20.107, 20.108,

20.109 must consult the department for French Placement.

Students from certain departments will be encouraged to enrol in special sections of French 20.108. The department also offers 20.210 and 20.310 for journalism students.

Notes:

1. Students require the permission of the department to enrol in French 20.106★.
2. Students desiring a First-year French credit to satisfy the language requirement of their department or school should consult that department or school as to the acceptability of French 20.100, 20.101, 20.102, 20.103.

French 20.100

Elementary French

This course is designed for beginners in the language. Classes use audio-visual methods and emphasis is given to the spoken language for both classes and laboratory work. The credit gained from this course will not count as part of the specific requirements for a Major or Honours degree in French. No auditors. Limited enrolment per section.

No supplemental or grade-raising examinations.

Registration through French Placement.

Day and Evening divisions: Five hours a week.

W.M. Fraser and members of the department.

French 20.101

Introductory Immersion French (two credits)

An intensive course designed for students with little or no previous knowledge of French, and combining the subject matter covered in French 20.100 and 20.102. The approach is largely audio-visual, with progressive introduction of written work. Extra-curricular activities will be organized outside of regular class hours. The credits gained from this course will not count as part of the specific requirements for a Major or Honours degree in French. Offered only in the Day division of the Summer session. Compulsory attendance at all classes and participation in all activities. No single credit given. No supplemental or grade-raising examinations. Enrolment limited to twenty students per section.

Exclusions: Students already holding credit for, or taking French 20.100, 20.102 or 20.103 are ineligible for this course. No auditors.

Registration through French Placement.

French 20.102

Intermediate French (A)

An audio-visual course providing intensive practice in all aspects of oral expression and comprehension. Attention is also devoted to written expression and comprehension. Compulsory attendance for both classes and laboratory work. The credit gained from this course will not count as part of the specific requirements for a Major or Honours degree in French.

No auditors. Limited enrolment per section.
No supplemental or grade-raising examinations.
Prerequisite: French 20.100 or French Placement.
Day and Evening divisions: Three hours a week, plus one hour of laboratory.
B. Burke and members of the department.

French 20.103

Intermediate French (B)

Review of basic grammar, oral and written exercises, contemporary reading selections. Compulsory attendance for both classes and laboratory work. The credit gained from this course will not count as part of the specific requirements for a Major or Honours degree in French. No auditors.

Prerequisite: French 20.100 or French Placement.

Day division: Three hours a week, plus one hour of laboratory.

C.P. Fleischauer, A. Halsall

French 20.106★

Reading French

This course, given in English, is designed to enable specialists from other departments in the humanities, social sciences and sciences to read technical texts in French with reasonable ease. The goal is comprehension of the written word only. The course involves basic French grammar, the reading of selected material from various fields, and an individual assignment in the student's specialization. The course is open to beginners. Registration by permission of the department. The half-credit gained from this course will not count as part of the specific requirements for a Major or Honours degree in French. No auditors.

Day division: One hour a week, throughout the year.

C.P. Fleischauer, S. Robinson

French 20.107

Intermediate Immersion French (two credits)

A course in the Summer Language Program designed for students with previous knowledge of French, and combining the subject matter covered in French 20.102 and 20.108. The approach is largely audio-visual and audio-oral, with some written work. Extra-curricular activities are organized outside regular class hours. The credits gained from this course will not count as part of the specific requirements for a Major or Honours degree in French. Offered only in the Day division of the Summer session. Compulsory attendance at all classes and participation in all activities. No single credit given. No supplemental or grade-raising examinations. Enrolment limited to twenty students per section.

Exclusions: Students already holding credit for, or taking French 20.102, 20.103, or 20.108 are ineligible for this course. No auditors.

Prerequisite: French 20.100 or French Placement before registration.

French 20.108

Advanced French for Non-Majors

Intensive study of the French language for students from other departments, based on audio-oral principles. Emphasis is placed on oral comprehension and expression, without omitting the written aspects of the language. The student is encouraged to speak French. Compulsory attendance at both classes and laboratory. No auditors. Limited enrolment per section. No supplemental or grade-raising examinations.

Prerequisite: French 20.102 or 20.103, or French Placement.

Day and Evening divisions: Three hours a week plus laboratory assignments.

G. Riser and members of the department.

French 20.109

Advanced Immersion French (two credits)

A course in the Summer Language Program combining the subject matter of two advanced-level courses, French 20.108 and 20.111, for the development of oral proficiency as well as written and grammatical expression. Extra-curricular activities are organized outside regular class hours. Only one of the credits gained from this course will count as part of the specific requirements for a Major or Honours in French. Offered only in the Day division of the Summer session. Compulsory attendance at all classes and participation in all activities; no supplemental or grade-raising examinations. Enrolment limited to twenty students per section. No auditors.

Exclusions: Students already holding credit for, or taking French 20.108, 20.111, 20.112 or 20.113 are ineligible for this course.

Prerequisite: French 20.101, 20.102, 20.103, or French Placement before registration.

French 20.111

Advanced French (A)

Intensive study of the French language, both spoken and written, with particular attention to the vocabulary, syntax and the various levels of speech: oral reports and written assignments. This course is particularly designed for Anglophone students intending to specialize in French, but it is also open to all those students who already have a good grounding in the language. Compulsory attendance for classes. No auditors.

Prerequisite: French 20.102 or 20.103, or equivalent.

Day and Evening divisions: Two one-and-a-half-hour or three one hour lectures a week plus laboratory assignments.

H.P. Clive and members of the department.

French 20.112

Advanced French (B)

Comprehensive study of modern grammar. Acquisition of an extensive vocabulary and variety of idioms. Grammatical study of a selection of texts, both prose and poetry. Exercises in writing short essays. This

course is particularly designed for Francophone students intending to specialize in French but it is also open to those students from other departments who possess the necessary proficiency. Compulsory attendance for classes. No auditors.

Day division: Two one-and-a-half-hour lectures a week.

E.F. Kaye

French 20.151

French-Canadian Literature

A course for students who do not intend to select French as a Major or Honours subject. Its purpose is to present the student with a survey of French-Canadian literature with emphasis on contemporary authors. Students are encouraged to use the French language for self-expression but need not do so. English may be used by the instructor in presenting and commenting on the texts.

Not offered 1982-83.

French 20.152

French Literature

A course for students who do not intend to select French as a Major or Honours subject. Its purpose is to present the student with a survey of French literature, with emphasis on contemporary authors. Students are encouraged to use the French language for self-expression but need not do so. English may be used by the instructor in presenting and commenting on the texts.

Not offered 1982-83.

French 20.161

Introduction to Literature: French Texts from the Seventeenth to the Nineteenth Century

This course introduces the student to a certain number of general views on literature with particular attention to the following: the basic elements of a literary work (characters, story, plot, subjects, themes), the problems of interpretation, the intentions of the author and the perception of the reader, the work in its various contexts: biographical, literary, sociological; the formal aspects typical of certain genres, particularly the drama and poetry. The texts illustrating these aspects in French literature are selected within the period from Molière (seventeenth century) to Verlaine (nineteenth century).

Prerequisite: Ontario Grade 13 French, French 20.101, 20.102, 20.103, or equivalent.

Day division: Three hours a week and one discussion group period.

E.F. Kaye

French 20.162

Introduction to Literature: French Texts from the End of the Nineteenth Century to the Present

This course introduces the student to a certain number of general views on literature with particular attention to the following: the basic elements of a literary work (characters, story, plot, subjects, themes), the problems of interpretation, the intentions of the

author and the perception of the reader, the work in its various contexts: biographical, literary, sociological; the formal aspects typical of certain genres, particularly the drama and poetry. The texts illustrating these aspects in French literature are selected within the period from Zola (nineteenth century) to the present day. Students taking this course will not be allowed to count French 20.266★ as part of the specific requirements for a Major or Honours degree in French.

Prerequisite: Ontario Grade 13 French, French 20.101, 20.102, 20.103, or equivalent.

Evening division: Three hours a week and one discussion group period.

E.N. Zimmerman

French 20.163

Introduction to Literature: French-Canadian Texts from the End of the Nineteenth Century to the Present

This course introduces the student to a certain number of general views on literature with particular attention to the following: the basic elements of a literary work (characters, story, plot, subjects, themes), the problems of interpretation, the intentions of the author and the perception of the reader, the work in its various contexts: biographical, literary, sociological; the formal aspects typical of certain genres, particularly the drama and poetry. The texts illustrating these aspects in French-Canadian literature are selected within the period from Nelligan (nineteenth century) to the present day. Students taking this course will not be allowed to count French 20.268★ as part of the specific requirements for a Major or Honours degree in French.

Prerequisite: Ontario Grade 13 French, French 20.101, 20.102, 20.103, or equivalent.

Day division: Three hours a week and one discussion group period.

M. Gaulin

French 20.181

Civilization I

This course entails the study of a certain number of important elements of the culture and civilization of two French-speaking countries, alternatively French Canada and France: culture, customs, institutions, etc., with emphasis on the present situation. English may be used by the instructor.

Prerequisite: Permission of the department.

Not offered 1982-83.

French 20.188

Contemporary English-Canadian and French-Canadian Literature

This course, which is offered by the French and the English departments, is designed for students who do not intend to select French as a Major or Honours subject. It provides a general introduction to the two major literatures of Canada, and is taught in the two languages. (Also listed as Canadian Studies 12.188 and English 18.188.)

Day division: Three hours a week.

P. Smart

French 20.210

Techniques d'expression écrite et orale pour journalistes

Ce cours, destiné aux étudiants en journalisme, insiste sur l'étude des éléments qui constituent les codes de la presse écrite et électronique, tout en examinant la presse francophone au Canada.

Prerequisite: French 20.108, 20.111 or permission of the department.

Day division: Three hours a week.

A. Ruprecht

French 20.211

Techniques d'expression écrite et orale (A)

Ce cours prépare l'étudiant anglophone à composer des textes dans un français soutenu et nuancé, par l'enrichissement du vocabulaire, par l'emploi de mots précis, d'images et autres procédés utilisés dans la composition de textes. Pratique de la composition écrite et de l'exposé oral.

Prerequisite: French 20.111 or permission of the department.

Day and Evening divisions: Three hours a week.

O. Condemine and members of the department.

French 20.212

Techniques d'expression écrite et orale (B)

Ce cours destiné aux étudiants francophones comporte des objectifs similaires à ceux du cours French 20.211, mais s'inspire d'une méthode et d'ouvrages adaptés à leur niveau de compétence linguistique.

Prerequisite: French 20.112 or permission of the department.

Day division: Three hours a week.

G. Riser

French 20.231

Initiation à la traduction

Techniques de la traduction. Traduction de l'anglais au français et du français à l'anglais. Textes d'intérêt général.

Prerequisite: French 20.111 or 20.112 or 20.113 or permission of the department.

Day and Evening divisions: Three hours a week.

F. Cousin, S. Robinson

French 20.232★

Introduction à l'étude linguistique du français

Revue des éléments essentiels en recherche linguistique; application de ces éléments à la description et à l'analyse de la langue française; préparation aux différents cours de linguistique français offerts au département.

Prerequisite: French 20.111 or 20.112 or 20.113 and Linguistics 29.100 or permission of the department.

Evening division, First term; Three hours a week.

G. Riser

French 20.233★

Phonétique et phonologie du français

Révision des notions fondamentales de la phonétique française. Organes de la parole. Phonèmes du français. Phonétique articulatoire et acoustique; phonétique combinatoire. Prosodie. Notions fondamentales

de la phonologie du français. Les traits distinctifs du français.

Prerequisite: French 20.111 or 20.112 or 20.113 and Linguistics 29.100 or permission of the department.

Evening division, Second term: Three hours a week.

V. Basseville

French 20.261★

La littérature du Moyen Age

Introduction aux principaux courants de la littérature médiévale et approfondissement d'un ou plusieurs aspects de celle-ci par l'étude détaillée de certains textes représentatifs.

Prerequisite: French 20.161 or 20.162 or 20.163 or permission of the department.

Not offered 1982-83.

French 20.262★

La littérature du XVI^e siècle

Introduction aux théories de la Pléiade et aux aspects principaux de la littérature de la Renaissance, avec approfondissement de différents aspects de cette littérature par l'étude détaillée de quelques textes.

Prerequisite: French 20.161 or 20.162 or 20.163 or permission of the department.

Day division, Second term: Three hours a week.

H.P. Clive

French 20.263★

La littérature du XVII^e siècle

Le classicisme et/ou le mouvement baroque dans la littérature française du XVII^e siècle, notamment le théâtre. Etude détaillée de plusieurs aspects de cette littérature dans un choix de textes représentatifs.

Prerequisites: French 20.161 or 20.162 or 20.163 or permission of the department.

Not offered 1982-83.

French 20.264★

La littérature du XVIII^e siècle

La fin du classicisme, le siècle de la raison, les Encyclopédistes et les Philosophes. Approfondissement d'un ou plusieurs aspects de cette littérature par l'étude détaillée de quelques textes.

Prerequisite: French 20.161 or 20.162 or 20.163 or permission of the department.

Evening division, Second term: Three hours a week.

R. Galliani

French 20.265★

La littérature du XIX^e siècle

Introduction aux principaux courants de la littérature française du XIX^e siècle: Romantisme, Réalisme, Parnasse, Symbolisme. Etude plus détaillée d'un ou plusieurs de ces aspects dans un choix de textes représentatifs.

Prerequisite: French 20.161 or 20.162 or 20.163 or permission of the department.

Day division: First term: Three hours a week.

E.F. Kaye

French 20.266★

La littérature du XXe siècle

Survol de la littérature française moderne du Naturalisme au nouveau roman; l'unité et la diversité de cette littérature avec des exemples choisis parmi les textes représentatifs d'un ou plusieurs aspects les plus marquants. This course will not count as part of the specific requirements for a Major or Honours degree in French if taken in conjunction with French 20.162. Prerequisite: French 20.161 or 20.162 or 20.163 or permission of the department. Not offered 1982-83.

French 20.267★

La littérature du XIXe siècle au Canada français

Introduction aux principaux courants idéologiques et littéraires. Les débuts du roman et/ou de la poésie d'après quelques textes représentatifs. Prerequisite: French 20.161 or 20.162 or 20.163 or permission of the department. Evening division, First term: Three hours a week. J.S. Tassie

French 20.268★

La littérature du XXe siècle au Canada français

Evolution des principaux genres littéraires vue dans une optique sociale et esthétique. Le cours portera principalement sur l'époque contemporaine. This course will not count as part of the specific requirements for a Major or Honours degree in French if taken in conjunction with French 20.163. Prerequisite: French 20.161 or 20.162 or 20.163 or permission of the department. Evening division, Second term: Three hours a week. O. Condemine

French 20.270★

Initiation à la critique littéraire

Examen détaillé d'un certain nombre de textes pour développer l'art de l'analyse critique et esthétique d'une oeuvre littéraire. Revue des principales méthodes de critique littéraire: approche historique, sociologique, psychanalytique, sémiologique etc. Prerequisite: French 20.161, or 20.162 or 20.163 or permission of the department. Evening division, Second term: Three hours a week. G. Riser

French 20.281

Civilisation II

Ce cours poursuivra les études menées dans le cours de French 20.181 en approfondissant certains aspects se rattachant à la notion générale de "civilisation" et offrira en alternance un contenu français et canadien-français pour permettre cette continuation. Prerequisite: Permission of the department. Not offered 1982-83.

French 20.282

Le théâtre: Théorie et pratique

Examen détaillé de plusieurs oeuvres théâtrales avec,

pour objet, la préparation à des travaux pratiques (diction, interprétation théâtrale) et la participation à une ou plusieurs pièces présentées dans le cadre du cours. Prerequisite: A First-year course in French or permission of the department.

Evening division: Three hours a week.

J.J. van Vlasselaer

French 20.310

L'Ecriture journalistique

Ce cours, destiné aux étudiants en journalisme, insiste sur l'analyse des mécanismes de l'écriture journalistique. L'étude des textes de nature différente (articles d'information, analyses, éditoriaux, reportages de fond, etc.) sera complétée par la rédaction d'articles sur l'actualité politique et autre.

Prerequisite: French 20.210 or permission of the department.

Day division: Three hours a week.

G. Riser

French 20.312

Cours de grammaire descriptive

Etude de la langue française par une réflexion sur les structures de la langue et l'utilisation des grandes grammaires descriptives du français. Méthodologie de la recherche grammaticale, établissement et bibliographies et de corpus. Exercices pratiques. Cours commun aux étudiants anglophones et francophones. Prerequisite: French 20.211 or 20.212 or 20.213 or permission of the department.

Evening division: Three hours a week.

P. van Rutten

French 20.331

Traduction avancée

Traduction de textes spécialisés (scientifiques, administratifs, commerciaux, juridiques, etc.) de l'anglais au français et du français à l'anglais.

Prerequisite: French 20.231★ or permission of the department.

Day division: Three hours a week.

J. Miquet

French 20.332

Français canadien

Historie de la langue française au Canada; description de la phonétique, morphologie, syntaxe; le lexique: archaïsmes, anglicismes, canadianismes; variations sociales et régionales; problème de la norme.

Prerequisite: French 20.232★ or permission of the department.

Not offered 1982-83.

French 20.333★

Histoire de la langue (A)

Etude phonétique, graphique, syntaxique et morphologique du Vieux français (XIIe siècle) et du Moyen français (XVe siècle), avec mise en valeur des phases intermédiaires pour les principaux aspects du langage.

Not offered 1982-83.

French 20.334★

Histoire de la langue (B)

Les transformations phonétiques, graphiques, morphologiques et syntaxiques les plus importantes du français de la Renaissance au français moderne.

Not offered 1982-83.

French 20.361

Littérature d'Imagination (A)

Not offered 1982-83.

French 20.362

Littérature d'imagination (B)

Le récit à la Renaissance. Etude de ses caractéristiques principales: structure, style, sujets, idées. Ses rapports avec les courants littéraires et intellectuels de l'époque. Auteurs principaux: Rabelais et Marguerite de Navarre.

Prerequisite: A course from series French 20.261★ to 20.268★ or permission of the department.

Evening division: Three hours a week.

H.P. Clive

French 20.363

Etudes littéraires

Not offered 1982-83.

French 20.364

Le théâtre

Etude de quelques pièces choisies pour leur valeur intrinsèque, leur intérêt scénique et leur importance dans l'histoire du théâtre et de la littérature. Situation des pièces dans l'historique du théâtre. Arrière-plan social. Etudes des circonstances de leur composition (l'auteur, sources, genèse) et de leur représentation (public, troupes, comédiens etc.). Etude interne des pièces: personnages, décors, intrigue, thèmes, structures dramatique, éléments du style. Accueil de la pièce, sa signification, sa portée et son influence. En 1982-83, le cours sera consacré au théâtre canadien-français.

Prerequisite: A course from series French 20.261★ to 20.268★ or permission of the department.

Day division: Three hours a week.

O. Condemine

French 20.366

Littérature et sciences humaines (I)

Prerequisite: A course from series French 20.261★ to 20.268★ or permission of the department.

Not offered 1982-83.

French 20.367

Méthodologie et littérature (I)

Discussion d'un certain nombre de conceptions critiques du texte littéraire compris comme système, c'est-à-dire comme interaction de phénomènes déductibles du texte.

Prerequisite: A course from series French 20.261★ to 20.268★ or permission of the department.

Not offered 1982-83.

French 20.381

Aspects de la littérature canadienne-française

Etude d'un thème, d'un mouvement ou d'un courant de la littérature québécoise. On se penchera surtout sur l'évolution d'un de ces aspects étudiée dans une optique à la fois historique, sociale et artistique.

Prerequisite: French 20.267★ 20.268★ or permission of the department.

Not offered 1982-83.

French 20.431

Traduction littérale

Traduction de l'anglais au français et du français à l'anglais de textes littéraires. Analyses de traductions déjà parues. Retraduction.

Prerequisite: French 20.231 or permission of the department.

Not offered 1982-83.

French 20.432

Morphologie et syntaxe du français

Grammaires modernes du français. Le cours a pour objet de familiariser les étudiants avec les grammaires modernes du français issues des derniers développements de la linguistique. On étudiera en particulier les systèmes grammaticaux.

Prerequisite: French 20.312 or permission of the department.

Not offered 1982-83.

French 20.433

Sémantique et lexicologie du français

Les méthodes modernes de la sémantique appliquées à l'analyse des textes littéraires. Sémantique, lexicologie et lexicographie françaises. Le cours portera en outre sur l'évolution de la sémantique, le concept de sens et de signification, la détermination des significations, l'évolution des sens et ses lois et l'établissement du lexique et sa structuration.

Prerequisite: Permission of the department.

Day division: Two hours a week.

P. van Rutten

French 20.434

Stylistique littéraire

Le cours est destiné à sensibiliser les étudiants aux procédés de l'expression littéraire et à les préparer à la critique stylistique. On étudiera en particulier les points suivants: la théorie du style littéraire, la fonction de la langue dans l'expression littéraire; la phonostylistique: utilisation des accents, des rythmes, des sons; la stylistique des mots: l'utilisation du vocabulaire, les effets affectifs, les effets par évocation; les translations figuratives: métaphores, métonymies, etc.; la stylistique de la phrase, etc.

Prerequisite: French 20.232★ and 20.233★ or permission of the department.

Not offered 1982-83.

French 20.435

Linguistique appliquée: pédagogie de l'enseignement du français

Revue des notions de linguistique, de phonétique et de psycholinguistique se rapportant à l'apprentissage et à l'enseignement du français comme langue première et langue seconde. Etude des processus d'acquisition de la langue. Description de la langue pour la préparation à l'enseignement. Critique scientifique des méthodes et des méthodologies d'enseignement. Etude des relations entre les recherches sur la communication et l'apprentissage du français.

Prerequisite: French 20.232★ or permission of the department.

Evening division: Two hours a week.

J.J. van Vlasselaer

French 20.461

Littérature d'idées (A)

Le roman d'idéologique en France 1880-1940. Analyse des structures de base du roman "à thèse", du roman "à idées" ou du roman idéologique. Examen du processus selon lequel le récit est mis au service d'un discours politique, religieux ou philosophique. Des romans de droite et de gauche seront étudiés, dont des oeuvres de Bourget, A. France, Barrès, Nizan, Malraux.

Prerequisite: A course from the series French 20.361 to 20.367 or permission of the department.

Day division: Two hours a week.

A.W. Halsall

French 20.462

Littérature d'idées (B)

Prerequisite: A course from series French 20.361 to 20.367 or permission of the department.

Not offered 1982-83.

French 20.463

Aspects de la littérature (A)

Not offered 1982-83.

French 20.464

Aspects de la littérature (B)

Gabrielle Roy et Gérard Bessette: Etude comparée de l'oeuvre de ces deux écrivains qui ont influencé profondément le roman au Canada français. Un corpus d'oeuvres importantes et variées se prête à l'examen des techniques artistiques individuelles.

Prerequisite: A course from the series French 20.361 to 20.367 or permission of the department.

Evening division: Two hours a week.

J.S. Tassie

French 20.466

Littérature et sciences humaines (II)

Not offered 1982-83.

French 20.467

Méthodologie et littérature II

Prerequisite: French 20.367 or permission of the department.

Not offered 1982-83.

French 20.481

Littératures francophones

Not offered 1982-83.

French 20.482

Initiation à la recherche

Comment et où effectuer des recherches pour étude d'une oeuvre, d'un auteur ou d'un thème. Les sources bibliothécaires et autres. Travaux pratiques: établissement de bibliographies, de fiches, d'une édition critique, etc.

Prerequisite: Permission of the department.

Not offered 1982-83.

French 20.483

Tutorial

Prerequisite: Permission of the department.

Graduate Courses Open to Undergraduates

(With permission of the department)

French

20.511 Emile Zola, romancier naturaliste (Summer 1982)

20.511 La "matière de Bretagne": Marie de France et Jean Renart

20.521 Esthétique au XVIIIe siècle

20.531 La Conte fantastique en France

20.551 Gaston Miron et le mouvement poétique des années 60

20.571 Deux dramaturges québécois: Marcel Dubé et Michel Tremblay

Courses planned for Evening Division

An effort will be made to offer as wide a selection as possible of courses in the Evening division of the Winter session over the next four years.

Department of Geography

Officers of Instruction

Chairman

T.P. Wilkinson

Supervisor of Graduate Studies

J.K. Torrance

Supervisor of Honours Studies (B.A.)

M.F. Fox

Supervisor of Honours Studies (B.Sc.)

M.W. Smith

Supervisor of Major Studies (B.A.)

M.W. Rosenberg

Supervisor of Special and Part-time Students

D.M. Anderson

Professors

J.P. Johnson, Jr.

G.C. Merrill

D.M. Ray

D.R.F. Taylor (*Joint appointment, International Affairs*)

P.J. Williams

Associate Professors

D.M. Anderson

D. Bennett

J. Clarke

D.B. Knight

M.W. Smith

J.K. Torrance

J.E. Tunbridge

A.I. Wallace

T.P. Wilkinson

Assistant Professors

M.F. Fox

M.W. Rosenberg

Map Librarian

B.E. Farrell

Geotechnical Science Laboratories

L. Boyle

A. Pendlington

Programmer/Analyst

S. Prashker

Adjunct Professors

R.O. Ramseier

G.D. Taylor

Sessional Lecturers

R.M. Defoe

D. De Lisle

A.F. Gregory

D. Monahan

F. Thomson

General Information

The Department of Geography has programs of study leading to the following degrees: B.A., B.A. (Honours), B.Sc. (Honours), and M.A. Concentrations can be developed (with particular reference to Canada and parts of northern lands, and the Third World) in: urban studies; regional development; economic geography; resource and land use planning; cultural, historical and political geography; physical geography and environmental management. Geographic skills are developed in areas such as: air photo interpretation; remote sensing; traditional and computer cartography and data processing. A mixture of classroom, laboratory, seminar and field studies is used in the program.

It is also possible to complete joint B.A. Majors and Honours programs between geography and many arts and social science disciplines, including law, economics, history, anthropology, psychology, political science, Canadian studies, sociology, journalism and biology. There is also a Combined Honours Geography and Biology program. Even without the formality of a combined program it is possible for those pursuing a single Major or Honours program in geography to develop a subsidiary thematic or regional concentration by taking a variety of non-geography electives. Please contact the Department of Geography for information about these possibilities.

Courses are normally taken in the year corresponding to the first digit in the course numbers. However, Third-year students may take additional 200-level and/or, with the necessary prerequisites, 400-level courses. Students without the formal prerequisites for courses may take geography courses with permission of the department.

In 1980 the Department of Geography undertook extensive program and course reorganization, in the process changing many full-credit courses to half-credit courses. A student who has credit for a full-credit course may not gain further credit for the new half courses which replace it.

Undergraduate Courses in Geography

45.101	Geographic Web	45.102★ Contemporary Issues I	45.103★ Contemporary Issues II
45.210★	Physical Environment	45.200★ Cartography 45.201★ Statistics 45.202★ Air Photos 45.299★ Field Techniques	45.220★ Global Economy 45.221★ Contemporary Economies 45.230★ Cultural-Landscape 45.231★ Cultural-Political
45.308	Soils	45.303★ Quantitative Methods	45.331★ Caribbean Cultural
45.311★	Environmental Monitoring	45.321★ Systems of Cities 45.329★ Cartography & Computer Cartography 45.398★ Research Methods	45.332★ S.W. Pacific Cultural 45.335 Historical 45.337★ Political 45.374 Law
45.312★	Geomorphology	45.333★ Planning	
45.345★	Climatology	45.334★ Planning 45.340★ Industrial Location 45.341★ Regional Economies 45.370★ Population	45.305★ Canada 45.306★ Canada 45.330★ Africa 45.351★ Northlands 45.360★ USSR 45.361★ E. Europe 45.395★ Selected Region
	Physical Geography	Techniques Methodology	Cultural-Historical
45.402★	Problems Tutorial	45.401★ Problems Tutorial	45.401★ Problems Tutorial
45.404★	Environment	45.403★ Remote Sensing	45.431★ Cultural
45.405★	Environment	45.405★ Environment	45.435★ Historical
45.411★	Quaternary	45.421★ Urban Themes	45.440★ Political
45.412★	Terrain Analysis	45.422★ Urban Social	
45.414★	Microclimatology	45.433★ Urban Planning	
45.415★	Slopes	45.434★ Transport	
45.418★	Periglacial	45.442★ Transport	
45.424★	Soil Mechanics	45.443★ Economic 45.445★ Land Resource Use	
		Urban-Economic Planning	Regional
45.496 Honours Research Project			45.499 Honours Research Essay

B.A. Major Programs

Major in Geography

This program is offered for students who wish a liberal arts education with emphasis in geography. Guidance on patterns of courses for particular interests is available from the department.

Students admitted to a single Major in geography are required to complete the equivalent of at least seven credits in geography, which must include:

1. *either* (I) Geography 45.101 or (II) Geography 45.102★ and 45.103★;
2. two of Geography 45.210★ (or 45.211★), 45.220★, 45.211★, 45.220★, 45.230★, 45.299★;
3. at least two and a half additional geography credits, of which two must be at the 300 level or 400 level.

Combined Majors

Students admitted to a Combined Major in geography and another department are required to complete the equivalent of at least five credits in geography which must include:

1. *either* (I) geography 45.101 or (ii) geography 45.102★ and 45.103★;
2. two of Geography 45.210★ (or 45.211★), 45.220★, 45.230★;
3. two of Geography 45.200★, 45.201★, 45.202★;
4. at least two additional geography credits (Geography 45.299★ is recommended); at least one geography credit must be at the 300 level.

B.A. Honours Programs

The Honours program in geography is offered for students who wish to prepare for graduate study, a career in planning, government, business, or other specialization in which the field of geography offers the appropriate training. Information on recommended patterns of courses related to various interests is available from the department. There is substantial freedom in the program for students to take courses of special interest in the University, as well as courses in geography and related disciplines.

Students reading for an Honours degree must satisfy the general University regulations for Honours (pp. 96-98).

Fourth-year Honours students may take geography courses listed in the Graduate Studies and Research Calendar only with permission of the department.

Honours in Geography

Students admitted to the Honours geography program are required to complete the equivalent of twenty

credits beyond Senior Matriculation or Qualifying University year in arts or social sciences. The equivalent of at least eleven credits must be in geography and must include:

1. *either* (I) Geography 45.101 or (II) Geography 45.102★ and 45.103★;
2. Geography 45.200★, 45.201★, 45.202★, 45.210★ or 45.211★, 45.220★, 45.230★, 45.299★;
3. Geography 45.398★ and 45.499;
4. at least five additional Geography credits, of which at least two must be at the 300 level and at least two must be at the 400 level.

Students wishing to take the Type A Specialist Certificate at an Ontario College of Education are advised to consult the Supervisor of Honours Studies as early as possible in order that an appropriate program can be arranged.

Combined Honours

Students taking Combined Honours in geography and another subject are required to complete the equivalent of at least seven credits in geography which must include:

1. *either* (i) Geography 45.101 or (ii) Geography 45.102★ and 45.103★;
2. two of Geography 45.210★ or 45.211★, 45.220★, 45.230★;
3. two of Geography 45.200★, 45.201★, 45.202★;
4. Geography 45.299★ or an approved field course in the other Honours department;
5. *either* Geography 45.398★ and 45.499 plus at least two additional geography credits, of which at least one must be at the 300 level and at least one must be at the 400 level; or an Honours Research Essay or equivalent in the other Honours department with at least three and a half additional geography credits which must include at least one credit at the 300 level and two at the 400 level.

B.A. Combined Honours in Biology and Geography
For geography requirements see above; for biology requirements see p. 108. Students must contact both departments for advice.

B.Sc. Honours Programs

Honours B.Sc. in Geography

The Bachelor of Science Honours program in Physical Geography is designed to give the student an understanding of the earth's surface as man's physical environment. The student will specialize in the study of properties and processes of the earth's surface materials and atmosphere.

The program consists of twenty credits beyond Senior Matriculation or Qualifying University year Science, selected in a pattern approved by the Supervisor of Honours Studies in the Geography Department, and consistent with the following requirements:

1. The First year of the program will be consistent with Science Faculty requirements for First year science.

2. The program will contain eight credits in geography at or beyond the 200 level, including the Honours Research Project 45.496, which should be taken in the final year.

3. The remaining seven credits must include:

(a) two approved credits in science, not in Geography, beyond the 100 level;

(b) two approved credits in science, computer science or engineering;

(c) two arts or social science electives, one of which must be an approved credit not in geography;

(d) one free elective.

4. In meeting the requirements 1 to 3, seven credits to be taken must be selected from the lists below and should include Geography 45.210★, 45.211★, 45.299★, 45.308, 45.311★, 45.312★ and 45.345★. In special cases students may take an appropriate graduate course in their final year, with permission of the Supervisor of Graduate Studies.

Physical Geography Courses

- 45.200★ Introduction to Cartography
- 45.201★ Statistical Methods in Geography
- 45.202★ Air Photo Interpretation and Remote Sensing
- 45.210★ The Physical Environment
- 45.211★ Geomorphology and Environmental Management
- 45.299★ Introduction to Field Techniques
- 45.303★ Quantitative Geography
- 45.308 Geography of Soils
- 45.311★ Environmental Monitoring
- 45.312★ Geomorphology
- 45.325 Cartography and Computer Mapping
- 45.345★ Physical Climatology and Climatic Change
- 45.400★ Field Studies
- 45.402★ Problems in Physical Geography
- 45.403★ Remote Sensing of the Environment
- 45.404★ Environmental Impact Assessment
- 45.405★ Problems of Environmental Impact Assessment
- 45.411★ Quaternary Geography
- 45.412★ Terrain Analysis
- 45.414★ Microclimatology
- 45.415★ Slope Development: Forms, Processes and Stability
- 45.418★ Selected Topics in Physical Geography
- 45.424★ Introductory Soil Mechanics and Engineering Geology

Physics 75.100 or 75.105 (required course in the Second year of the program if not taken in First year)

Mathematics 69.257★

Geology 67.233★ and 67.281★

A recommended program is:

First Year

Mathematics 69.107★ and 69.117★;

Chemistry 65.100;

Geology 67.100;

one of *Geography* 45.210★ with 45.211★ or *Biology* 61.100 or *Physics* 75.100;

arts or social science elective (may not be *Geography* 45.101 if 45.210★ with 45.211★ is selected).

Second Year

Geography 45.200★, 45.202★, 45.299★;

one of: *Geography* 45.210★ with 45.211★; 45.308; 45.345★; with an additional half credit from the preceding list of approved physical geography courses;

Mathematics 69.257★;

science elective or *Physics* 75.100 or 75.105 (required course in Second year if not taken in First year);

arts or social science elective.

Third Year

Geography 45.311★ or 45.312★;

either *Geography* 45.308; or 45.345★ with an additional half credit from the preceding list of approved physical geography courses;

one 400-level geography credit;

one science continuation credit;

arts or social science elective.

Fourth Year

Three 400-level geography credits (including 45.496); one science continuation credit; free option.

Note:

A human geography course is recommended as one of the arts or social science electives.

Combined Honours B.Sc. in Biology and Physical Geography

Students desiring a comprehensive basic education in both biology and physical geography may apply to a Combined Honours B.Sc. program. Applicants must satisfy entry requirements of the Honours B.Sc. program. Course requirements of the Combined Honours B.Sc. program are as follows:

1. *Biology* 61.100 (or 61.101), *Mathematics* 69.107★ and 69.117★ (or 69.127★), *Chemistry* 65.100 and one of *Geology* 67.100 or *Physics* 75.100 or 75.105. *Physics* must be taken in this program or Grade 13 *Physics* must be presented as an entrance credit.

2. Two optional credits which are acceptable courses offered by the Faculties of Arts or Social Sciences. A credit from geography courses *not* listed on p. 169, such as *Geography* 45.101, is recommended.

3. One additional science credit from the list on pp. 365-366 (Geology 67.100 or Physics 75.100 or 75.105 are recommended).

4. One free option credit.

5. Ten credits in biology (or biochemistry) and physical geography (see courses listed on p. 169) beyond First-year level, including at least one half credit involving a field course. Not more than six credits in this group should be taken in one department and not more than six may be at the 200 level.

6. One additional credit in science or computing science above the 100 level, not in biology or geography and chosen in consultation with the student's program adviser.

7. Biology 61.498 or Geography 45.496.

Graduate Programs

The Department of Geography offers graduate programs in human geography, physical geography and geotechnical science. For further details consult the Graduate Studies and Research Calendar.

Courses Offered

Geography 45.101

The Geographic Web

An introductory course concerned with the structure of two major systems: the ecological system that links man and his environments, and the spatial system that links one region or place to another. Concepts and methods useful in geography are introduced through an integrated view of current concerns with the environment and ecology, and with regional contrasts and imbalances in human welfare. Four topic areas are introduced: I. practical work in geography; II. the physical environment; III. population, resources and space; IV. cultural, urban and political systems.

Day and Evening divisions: Section A: Lectures and discussion three hours a week; Section B: Regulated, self-instructional mode three hours a week.

J. Clarke, M.F. Fox, J.P. Johnson, Jr. T.P. Wilkinson

Geography 45.102★

Geographic Analysis of Contemporary Issues: Environment, Economy and Resource Use

Examination of the variety of geographic factors operating in the contemporary world, emphasizing global and regional issues in which environmental, economic geography and resource problems are crucial; organized around a series of themes which include global climatic change, desertification, global food problems, the geographic impact of declining oil supply, and the world oceans — changing conditions and role.

Evening division, First term: Lectures two hours a week, laboratory/discussion one hour a week.

J.K. Torrance, A.I. Wallace

Geography 45.103★

Geographic Analysis of Contemporary Issues: Cultural and Political

Examination of the variety of geographic factors operating in the contemporary world, emphasizing global and regional issues in which political and cultural geography is central; organized around a series of themes including colonial linkages to Third World development, metropolitan dominance and "mini-states", diffusion of technology and values, territorial integration and fragmentation.

Evening division, Second term: Lectures two hours a week, laboratory/discussion one hour a week.

D.B. Knight

Geography 45.200★

Introduction to Cartography

Introduction to cartography and the collection of geographic data.

Prerequisite: Geography 45.101 or Geography 45.102★ and Geography 45.103★ or permission of the department.

Evening division, First term: Lectures two hours a week, laboratory two hours a week.

D. Monahan

Geography 45.201★

Statistical Methods in Geography

Introduction to statistical analysis as applied to geography.

Prerequisite: Geography 45.101 or Geography 45.102★ and Geography 45.103★ or permission of the department.

Day division, Second term: Lectures two hours a week, laboratory two hours a week.

M.F. Fox

Geography 45.202★

Air Photo Interpretation and Remote Sensing

Introduction to the techniques of air photo interpretation, remote sensing of the environment and elements of photogrammetry.

Prerequisite: Geography 45.101 or 45.102★ and 45.103★ or permission of the department.

Evening division, Second term: Lectures two hours a week, laboratory two hours a week.

M.F. Fox

Geography 45.210★

The Physical Environment

The physical geography of natural environments, emphasizing the kinds of earth materials, their properties, and the processes which act upon them.

Prerequisite: Geography 45.101 or 45.102★ and 45.103★ or permission of the department.

Day division, First term: Lectures two hours a week, laboratory three hours a week.

M.W. Smith, J.K. Torrance, T.P. Wilkinson

Geography 45.211★

Geomorphology and Environmental Management

Examination of earth surface materials, processes and hazards in relation to their physical and socio-economic importance; environmental impacts and the need for land management.

Prerequisite: Geography 45.210★ or permission of the department.

Day division, Second term: Lectures two hours a week, laboratory three hours a week.

J.P. Johnson, Jr., T.P. Wilkinson

Geography 45.220★

Geography of the Global Economy

An overview of the global economy, focusing on the geographical pattern of its evolution and its resource base. Theories of spatial relationships at various scales, including the development of core-periphery contrasts, national urban systems and regional specializations in agriculture and industry.

Prerequisite: Geography 45.101 or 45.102★ and 45.103★ or permission of the department.

Day division, First term: Lectures and discussion three hours a week.

I. Wallace

Geography 45.221★

Geographical Challenges of Contemporary Economies

Geographical analysis of problems facing modern economies, within different political frameworks and at varying levels of technological development. Includes provision of food and energy supplies, the activity of multinational corporations, policies to combat regional economic disparities and problems of growth and change in urban areas.

Prerequisite: Geography 45.220★ is recommended.

Day division, Second term: Lectures and discussion three hours a week.

I. Wallace

Geography 45.230★

The Cultural Landscape

Man-moulded and man-modified landscapes and the perception of these landscapes by different ethnic groups are explored; processes of landscape change in the Ottawa Valley and Eastern Ontario are compared with other areas in Canada and the world; the impacts of political and religious ideology and developmental processes are examined.

Prerequisite: Geography 45.101 or 45.102★ and 45.103★ or permission of the department.

Evening division, First term: Lectures and discussion three hours a week.

G.C. Merrill

Geography 45.231★

Conflict and Accord in the Modern World

The role of boundaries, especially cultural and political; the meanings given to space, with emphasis on their impact on development processes and on ethnic and international conflict; culture area, cultural ecology, and plural societies.

Prerequisite: Geography 45.230★ is recommended.

Day division, Second term: Lectures and discussion three hours a week.

D.B. Knight

Geography 45.299★

Introduction to Field Techniques

An intensive week-long field camp (following Fall registration) and meetings through the First term. Geographical techniques of observation, data gathering, measurement and analysis will be explored in group work and individual projects. Cost of room and board relating to the field camp are borne by the student. Required for geography Majors, Honours and Combined Honours students.

Prerequisite: Geography 45.101 or 45.102★ and 45.103★ or permission of the department.

Day division, First term: One week field camp and two hours lecture/laboratory per week.

Geography 45.303★

Quantitative Geography

Multiple-regression and factor analytic techniques as applied to problems of classification, regionalization, explanation and hypothesis testing in geographical research. Various taxonomic algorithms are examined and an introduction to geographical models is provided.

Prerequisites: Geography 45.201★ and enrolment in a geography degree program or permission of the department.

Day division, First term: Lectures and laboratory three hours a week.

M.F. Fox

Geography 45.305★

Canada: A Geographic System

Integration of the various interpretations of the geography of Canada, including staple-export theory, metropolitanism, and heartland-hinterland relationships, into a broad systems framework which reveals the interdependencies among various policy issues of concern to Canadians.

Prerequisite: Third-year standing or permission of the department.

Evening division, First term: Lectures three hours a week.

D. De Lisle

Geography 45.306★

Canada: A Regional Mosaic

Regional characteristics of Canada; concepts of and the nature of regionalism; comparisons of the nature and underlying causes of regional differences which underlie many current Canadian problems.

Prerequisite: Third-year standing or permission of the department.

Evening division, Second term: Lectures three hours a week.

D.M. Anderson

Geography 45.308

Geography of Soils

The chemical and physical properties of soils; soil types and their distribution.

Prerequisite: Geography 45.210★ or permission of the department.

Day division: Lectures two hours a week, laboratory three hours a week.

J.K. Torrance

Geography 45.311★

Environmental Monitoring

A course designed to instruct students how to carry out field, laboratory and archival investigations needed to understand physical, environmental processes and their role in the origin, history and character of specific sites and environments.

Prerequisites: Geography 45.201★, 45.202★, 45.210★ or permission of the department.

Day division, First term: Lectures and discussion, field and/or laboratory work, five hours a week.

J.P. Johnson, Jr., M.W. Smith

Geography 45.312★

Geomorphology

The theory of landforms and geomorphic processes. (Offered alternate years, commencing Winter term 1983, then alternating with field studies in physical geography offered under Geography 45.400★.)

Prerequisite: Geography 45.210★ or permission of the department.

Day division, Second term: Lectures two hours a week, laboratory three hours a week.

J.P. Johnson, Jr., T.P. Wilkinson

Geography 45.320★

The Canadian City: Internal Structure and Contemporary Problems

The internal structure of the western city with explicit application to Canadian cities; current urban problems and their attempted resolutions, with particular focus on: inner city revitalization and peripheral expansion, movement toward metropolitan organization of the city; evolving transportation systems and their interaction with land use.

Prerequisite: Geography 45.220★ or permission of the department.

Day division, First term: Lectures three hours a week.

J.E. Tunbridge

Geography 45.321★

Systems of Cities: Global Perspectives

Examination of global evolution of urban systems; contemporary city systems as a theoretical concept, emphasizing current research into growth mechanisms and prospects for their regulation; the global diversity of urbanism, taking an overview of systems and considering contrasting internal patterns.

Prerequisite: Geography 45.220★ or permission of the department.

Not offered 1982-83.

Geography 45.325

Cartography and Computer Mapping

The history and development of map making. The compilation, production and uses of the modern topographic map. Special purpose maps and their use, construction and development; introduction to computer mapping, its use and applications.

Prerequisite: Geography 45.200★ or permission of the department.

Evening division: Lectures two hours a week, laboratory three hours a week.

R.M. Defoe

Geography 45.329★

Geography of Development

Evolution of patterns of world inequality and the problem of development; theories and case studies illustrating different strategies for growth and development; spatial and ecological dimensions and the role of culture and institutional frameworks; rural-urban interaction; "developed" and "underdeveloped" countries as one interdependent system.

Prerequisite: Geography 45.220★ or 45.230★ or 45.231★ or permission of the department.

Evening division, First term: Lectures three hours a week.

Geography 45.330★

Developing Nations of Inter-Tropical Africa

Geographical aspects of the problems and potential of the developing nations of inter-tropical Africa. The interaction of man and his environment is examined as well as the historical developments which have led to some of the present day situations.

Prerequisite: Third-year standing or permission of the department.

Evening division, Second term: Lectures three hours a week.

F. Thomson

Geography 45.331★

Cultural Geography of the Caribbean

Caribbean lands and societies are examined from the viewpoint of cultural geography, with an emphasis upon the culture history that has produced the pluralistic societies that characterize the modern Caribbean.

Prerequisite: Geography 45.230★ or 45.231★ or permission of the department.

Evening division, Second term: Lectures and discussion three hours a week.

G.C. Merrill

Geography 45.332★

Cultural Geography of the South West Pacific

Cultural and racial complexities and diverse patterns of population distribution and man/land relationships to be examined from the viewpoint of cultural geography and related to problems of development in Australia, New Zealand and the islands of the South West Pacific.

Prerequisite: Geography 45.230★ or 45.231★ or permission of the department.

Day division, Second term: Lectures three hours a week.

D.B. Knight

Geography 45.333★

Land Use, Regional Development and Planning in Canada

Introduction to land-use planning in Canada, with the chief emphasis on Ontario. The forces affecting land use in Canada, evolution of local and regional planning, the nature of municipal planning, the roles of governments in local, regional and national planning, and relationships between conservation, regional development and land resource planning. Selected Ontario and federal legislation is examined.

Prerequisite: Third-year standing or permission of the department.

Evening division, First term: Lectures two hours a week, one hour discussion group.

D.M. Anderson

Geography 45.334★

Renewable Resource Planning in a Local Area

A planning-oriented examination of a local river basin, aimed at developing a co-ordinated plan for renewable resource management, utilizing existing local, regional and watershed legislation in Ontario. Students work in project teams, under supervision, to develop a practical plan for land use, water resource management, urban development, recreational space and environmental preservation.

Prerequisite: Geography 45.333★ or permission of the department.

Day division, Second term: Lectures, discussion and project work three hours a week.

D.M. Anderson

Geography 45.335

Historical Geography of Canada

An introduction to the methodology of historical geography and to the historical geography of Canada.

Prerequisite: Geography 45.230★, or History 24.230 or 24.231 or permission of the department.

Day division: Lectures and discussion three hours a week.

J. Clarke

Geography 45.337★

Systematic Political Geography

A systematic analysis of political structures, processes and behaviour from a geographic perspective through examination of the "classical" works in political geography and current literature.

Prerequisite: Geography 45.230★ or 45.231★ or permission of the department.

Evening division, First term: Lectures three hours a week.

D.B. Knight

Geography 45.340★

The Location of Industry and Public Services

Theories of industrial location and of the geographical behaviour of business corporations. Geographical decision-making in the public sector, especially in urban areas.

Prerequisite: Geography 45.220★ or permission of the department.

Evening division, First term: Lectures and discussion three hours a week.

M.W. Rosenberg

Geography 45.341★

Geographical Analysis of Regional Economies

Examination of the various bases for regional economic development, including resource endowment, relative location and the significance of external influences. Relationships between economic structure and spatial structure at various scales. Issues of theory and policy are both addressed.

Prerequisite: Geography 45.220★ or permission of the department.

Day division, Second term: Lectures and discussion three hours a week.

M.W. Rosenberg

Geography 45.345★

Physical Climatology and Climatic Change

Explanation of global climates in terms of the energy and water balance regimes of the earth and its atmosphere; history of climate; contemporary issues in climatic change and possible future climates.

Prerequisite: Geography 45.210★ or permission of the department.

Day division, Second term: Lectures two hours a week, laboratory two hours a week.

M.W. Smith

Geography 45.351★

Northern Lands

An analysis of the physical characteristics, historical geography, economic resources, settlement patterns and problems and the future development of Arctic and Subarctic lands, focusing primarily on Canada.

Prerequisite: Third-year standing or permission of the department.

Evening division, First term: Lectures three hours a week.

Geography 45.360★

Soviet Union

An examination of the problems of the Soviet Union emphasizing locational factors, man/land relationships and areal differentiation.

Prerequisite: Third-year standing or permission of the department.

Not offered 1982-83.

Geography 45.361★

East Europe

An examination of the problems of Eastern Europe emphasizing locational factors, man/land relationships and areal differentiation.

Prerequisite: Third-year standing or permission of the department.

Evening division, Second term: Lectures three hours a week.

Geography 45.370★

Population Geography

Studies of the distributional aspects of population attributes. The areal patterns of population characteristics and their spatial variations associated with differences in the nature of places are examined. Migratory movements are considered within the framework of spatial models of interactions between locations.

Prerequisite: Either Geography 45.231★ or 45.220★ or permission of the department.

Day division, Second term: Lectures three hours a week.

D. Bennett

Geography 45.374

Local Government Law

Offered as Law 51.374.

Geography 45.395★

Selected World Regional Problems

Geographical analysis of topical problem areas in the world community. Area under consideration in 1982-83: Southern Africa.

Prerequisite: Third-year standing or permission of the department.

Day division, Second term: Lectures and discussion three hours a week.

G.C. Merrill

Geography 45.398★

Research Methods and Design

Approaches to research problems in geography; identification of a research topic, research design including geographic data acquisition and analysis. Students are given the opportunity to design and evaluate research proposals. Required for geography B.A. Honours students.

Prerequisite: Third-year Honours standing in Geography or permission of the department.

Day division, Second term: Lectures and discussion three hours a week.

M.W. Rosenberg

Geography 45.400★ (45.399★)

Field Studies

Field observation and methodology in a selected region; individual or group basis.

Prerequisite: Permission of the department.

Day or Evening division, First or Second terms: Hours to be arranged.

Geography 45.401★

Problems In Human Geography

A course designed to permit a student to pursue his interests in a selected field of human geography. The student prepares papers for discussion with the tutor.

Prerequisites: Final-year Honours standing and permission of the department.

Day division, First or Second term: Hours to be arranged.

Geography 45.402★

Problems in Physical Geography

A course designed to permit a student to pursue his interests in a selected field of physical geography. The student prepares papers as the basis for discussion with the tutor.

Prerequisites: Final-year Honours standing and permission of the department.

Day division, First or Second term: Hours to be arranged.

Geography 45.403★

Remote Sensing of the Environment

The recording of earth features from suborbital and orbital altitudes and applications to the study of natural and man-made environments. Interpretation and geometry of the air photo; technical aspects include the electro-magnetic spectrum, active and passive sensors, sensor platforms, and visual and digital image analysis; practical applications are explored in such areas as agriculture, forestry, corridor mapping, hydrology, urban analysis and regional planning, and northern environments.

Prerequisite: Geography 45.202★ or permission of the department.

Day division, Second term: Lectures two hours a week, laboratory two hours a week.

A.F. Gregory

Geography 45.404★

Environmental Impact Assessment

An examination of the principles, scope and purpose of environmental impact assessment, from conceptual and methodological points of view. The broad range of environmental and socio-economic impacts of development projects is illustrated by case studies.

Prerequisite: Fourth-year geography Honours standing or, for non-geography students, permission of the department.

Day division, First term: Lectures and seminars four hours a week.

M.W. Smith

Geography 45.405★

Problems of Environmental Impact Assessment

A project-oriented course in which students apply the principles and methods of environmental impact assessment to selected development projects.

Prerequisite: Fourth year geography Honours standing or, for non-geography students, permission of the department.

Day division, Second term: Lectures and seminars with field investigation or laboratory work as appropriate, five hours a week.

D.M. Anderson, M.W. Smith

Geography 45.411★

Quaternary Geography

Changes in the physical environment of the earth during and subsequent to the last ice age. (Also listed as Geology 67.415★.)

Prerequisites: Geography 45.308 and 45.345★ or permission of the department.

Day division, Second term: Lectures three hours a week.

J.P. Johnson, Jr.

Geography 45.412★

Terrain Analysis

Statistical techniques of morphometric and spatial analysis; applications in geomorphology and geography.

Prerequisites: Geography 45.201★, or a course in statistical methods and permission of the department.

Not offered 1982-83.

Geography 45.414★

Microclimatology

Prerequisite: Geography 45.345★ or 45.346★ or permission of the department.

Not offered 1982-83.

Geography 45.415★

Slope Development: Forms, Processes and Stability

The various forms of sloping ground, their origin and present behaviour in relation to environment and materials. Landslides, mudflows, creep, soil erosion; criteria for relative stability.

Prerequisite: Geography 45.308 or permission of the department.

Not offered 1982-83.

Geography 45.418★

Selected Topics In Physical Geography

A course focusing on selected topics in physical geography. Topics for 1982-83: periglacial phenomena, the effects of freezing and thawing on soils, and related issues.

Prerequisites: Fourth-year standing and permission of the department.

Evening division, Second term: Lectures/laboratory three hours a week.

Geography 45.421★

Selected Themes In Urban Geography

A seminar developed on selected themes, introduced in Geography 45.320★, or 45.321★, for example, perception and consumer behaviour in shopping, planning concepts and development; application in the specific context of Ottawa.

Prerequisite: Geography 45.320★ or permission of the department; Geography 45.321★ recommended.

Evening division, First term: Seminar three hours a week.

J.E. Tunbridge

Geography 45.422★

Selected Themes In Social Geography

Themes alternate between medical geography and the geography of social well-being. Both are offered in 1982-83. The geography of social well-being is concerned with describing and explaining spatial variations and correlations of social indicators. Examines the extent to which locational and spatial arrangements influence the equality, justice or fairness of access to life-chances. Medical geography investigates association between health and environments, the diffusion of diseases from place to place, and the location and provision of health care facilities.

Prerequisite: Geography 45.303★ or permission of the department.

Section A (Social well-being), Evening division, First term: Seminar/lectures three hours a week.

Section B (Medical), Day division, Second term: Seminar/lectures three hours a week.

D. Bennett

Geography 45.424★

Introductory Soil Mechanics and Engineering Geology

Offered as Engineering 82.328★.

Geography 45.431★

Advanced Cultural Geography

Cross-cultural thematic examination of territorial organization, territoriality, mental maps, geographies of the mind, and landscape impact of authority and ideology. Regional foci will be principally Canada and Africa.

Prerequisite: Geography 45.230★ or permission of the department; Geography 45.231★ recommended.

Not offered 1982-83.

Geography 45.433★

Urban Planning

Offered as Engineering 82.333★.

Geography 45.434★

Transportation

Offered as Engineering 82.434★.

Geography 45.435★

Historical Geography

The relation of geography and history, the use of field techniques, primary documents, model building and statistical methods in historical geography. Emphasis is given to local studies.

Prerequisite: Geography 45.335 or permission of the department.

Evening division, First term: Lecture three hours a week.

J. Clarke

Geography 45.440★

Advanced Political Geography

Systematic concepts in political geography are applied to the analysis of specific contemporary regional problems, territorial conflicts and case studies such as

European integration, the Middle East and Southern African conflicts, and the management of the world's oceans.

Prerequisite: Geography 45.337★ or permission of the department.

Not offered 1982-83.

Geography 45.442★

Transportation Geography

Geographical appraisal of transportation systems in relation to their physical, social, and economic milieu. The role of transport in industrial location, regional development and trade patterns; problems of urban transport and Canadian transportation policy issues. (Also listed as Engineering 82.435★.)

Prerequisite: Geography 45.220★ or permission of the department.

Day division, Second term: Lectures and seminars three hours a week.

I. Wallace

Geography 45.443★

Issues in Applied Economic Geography

A problem-oriented course in the field of economic geography. Topics are drawn from a variety of areas of concern, such as agriculture, resource development, manufacturing and trade.

Prerequisite: Geography 45.340★ and 45.341★ or permission of the department.

Not offered 1982-83.

Geography 45.445★

Land Resource Use

This course examines, from both theoretical and empirical approaches, the nature and problems of man's use of land resources. The emphasis is on the processes, the impacts of urbanization on rural land patterns and on contemporary methods of land evaluation and classification.

Prerequisite: Geography 45.333★ or permission of the department.

Not offered 1982-83.

Geography 45.490★

Development of Geographic Thought and Methodology

The development of ideas and methods in geography. An examination and discussion of original works. Recommended for Honours students.

Prerequisite: Fourth-year standing or permission of the department.

Not offered 1982-83.

Geography 45.496

Honours Research Project

Candidates for B.Sc. with Honours in geography undertake a research project based on a laboratory or field problem. The project is supervised by a member of the department and a written report must be submitted. The candidate may be examined orally on the report.

Prerequisite: Fourth-year standing in the Geography B.Sc. Honours program.

Day division: Hours arranged.

Supervisor of B.Sc. Honours Studies (co-ordinator) and members of the department

Geography 45.499

Honours Research Essay

A student in the final year of Honours in Geography (or Combined Honours) must write an Honours essay or equivalent. The essay counts as the equivalent of one full-course credit. Students work under an individual faculty adviser. The subject for research is decided upon in consultation with the supervisor.

Prerequisite: Fourth-year honours standing and permission of the department.

Day division: Hours to be arranged with faculty adviser.

Supervisor of B.A. Honours Studies (co-ordinator) and members of the department

Officers of Instruction

Chairman

Jutta Goheen

Professors

J. Goheen

E.M. Oppenheimer

Associate Professors

Joseph B. Dallett

Robert Gould

Basil Mogridge

Sessional Lecturers

Helga Collett

Brunhilde Daigle

Brigitta Fernandez

Gurkiran Mann

Ursula Mount

General Information

German language and literature can be seen in various ways: in their historical dimension, with all the wealth of cultural context that that implies; as the subject matter of more theoretical frames of reference such as linguistics or aesthetics; and as contemporary means of communication and illumination. These three approaches all play a part in German studies at Carleton.

The department's offerings range from German for beginners (one-credit or two-credits) up to the M.A. program. One can take a single German course, or a sequence, or a whole program (Major or Honours). In the latter case students often find that to have a two-fold specialization (i.e. to take a Combined Major or Combined Honours) suits them. It is also possible, while to some extent specializing in German, to take a sequence of two or three courses in another field, such as economics, or computer science, or another language.

The combinations are many and various, and the department accommodates both those whose prime objective is practical command of the language (as taught in a university context) and those who wish to study an unusually rich literature.

A number of the department's courses are taught wholly or partly in German; students may contact the department to discover the language of instruction in a particular course. In general, it is helpful to both parties if students who, after reading the course descriptions, are in doubt as to which course to take, consult the department before registration week.

Intensive Introductory German

Students considering beginning the study of German at Carleton should take particular note of German 22.120, Intensive Introductory German (two credits). This course is designed to enable students to reach in one year the level of proficiency normally attained over two years in German 22.115 and 22.150.

Undergraduate Programs

There are four alternative undergraduate programs, all of which normally include the following core in German:

1. 22.150 Intermediate German A;
or 22.151 Intermediate German B;
or 22.120 Intensive Introductory German;
2. 22.201★ Spoken German;
22.202★ Written German;
3. 22.250 German Literature of the Eighteenth Century.

To that core students during their program, and in consultation with the department, add a number of options from German 22.211★, 22.212★, 22.280, and higher courses. The number of these options to be added to the core varies according to the program.

Single Major

Core plus three courses (or equivalent including half courses), at least one of them at the 300 level; i.e. six in all.

Combined Major

Core plus two courses (or equivalent including half courses), at least one of them at the 300 level; i.e. five in all.

Single Honours

Core plus six courses (or equivalent including half courses), at least one of them at the 400 level; i.e. nine in all.

Combined Honours

Core plus four courses (or equivalent including half courses), at least one of them at the 400 level; i.e. seven in all.

Students with an advanced knowledge of German will select a suitable course program in consultation with the chairman of the department.

Combined Majors Programs

Combined Majors are possible with a number of other subjects, among them art history, music, history, philosophy, political science, religion, linguistics, Latin, English, French, Spanish, Italian, and Russian. Early consultation with the departments concerned is advised.

Combined Honours Programs

Combined Honours are possible with a variety of subjects. Among the possibilities are German with art history, economics, English, French, geography, history, Italian, Latin, linguistics, mathematics, music, philosophy, political science, psychology, Russian, or Spanish. Early consultation with the departments concerned is strongly advised. All Honours programs, including Combined ones, are designed to serve, where required, as a basis for further work in German at the graduate level.

Related Courses

In various departments of the University, courses are offered on other aspects of the German-speaking area; these courses cover the past and the present, and include a wide variety of topics in the humanities and social sciences. Students considering a Major or Honours degree in German should not overlook the opportunities present in the University which enable them to add, if they so wish, these additional dimensions to their studies. Conversely, students in disciplines other than German who have a particular interest in Europe and its languages should be aware of the availability to them of the German Department's courses.

Graduate Program

The Department of German offers studies leading to the degree of Master of Arts. For further details consult the Graduate Studies and Research Calendar.

Courses Offered

German 22.115

Introductory German

A beginners' course designed to give a sound grasp of the fundamentals of present-day German. (The facilities of the language learning resource centre are open to students. Guidance in the reading of scientific and scholarly papers can also be arranged.)

Day and Evening divisions: Four hours a week.
Jutta Goheen and members of the department

German 22.120

Intensive Introductory German (two credits)

An intensive course designed to enable students with little or no previous knowledge of German to reach in one year the level of proficiency normally attained over two years in German 22.115 and 22.150. The course thus provides a basis for majoring in German, but enrolment is not restricted to intending Majors. Students not making satisfactory progress will be transferred to the regular introductory course, German 22.115.

Prerequisite: Permission of the department.

Day division: Six hours a week.

Basil Mogridge and members of the department

German 22.150

Intermediate German A

Using a number of teaching methods, the course takes students from successful completion of the elementary course to a stage where they are able to express themselves with greater ease in a variety of situations. Material for the course is drawn from several sources, including the press and excerpts from radio programs, and is directed above all towards improved oral competence without, however, neglecting the skills of reading and writing. The course also includes a period during which students choose a topic or area of activity of particular interest, such as politics, travel, university life, and under the supervision of the instructor develop the vocabulary and skills in order to possess a greater linguistic competence in the selected area.

Prerequisite: German 22.115 or equivalent.

Day and Evening divisions: Four hours a week.

Robert Gould

German 22.151

Intermediate German B

This course pursues objectives similar to those of German 22.150 and is designed for students who enter it with a higher than average standing on the elementary level, or with several years of High School or equivalent background. Grammar work and texts are appropriately adapted to this group which is likely to include declared or prospective Majors.

Prerequisite: Good standing in German 22.115 or equivalent.

Day division: Four hours a week.

Basil Mogridge

German 22.201★

Spoken German

Work in small groups with special emphasis on comprehension and self-expression in everyday spoken German.

Prerequisite: German 22.120, 22.150 or 22.151 or permission of the department. (This course is not open to native speakers of German.)

Evening division, First term: Three hours a week.

German 22.202★

Written German

A course parallel to German 22.201★, and emphasizing comprehension and self-expression in written German, by such means as essay-writing and translation into and from German.

Prerequisite: German 22.120, 22.150 or 22.151, or permission of the department.

Evening division, Second term: Three hours a week.

Robert Gould

German 22.211★

Descriptive Analysis of Present-day German I

Patterns of German word formation and their interaction with syntactic structures. Analysis of text samples from various written sources, some practice in writing short essays in German.

Prerequisite: German 22.120, 22.150 or 22.151, and Linguistics 29.100 or permission of the department. Not offered 1982-83.

German 22.212★

Descriptive Analysis of Present-day German II

An explication of German sentence structure in the light of current linguistic theories. Text analysis and some practice in writing.

Prerequisite: German 22.120, 22.150 or 22.151, and Linguistics 29.100 or permission of the department. Day division, First term: Three hours a week.

Jutta Goheen

German 22.230

Austrian Culture and History

This course, designed for students who do not have German, considers the forces shaping events in the period from the 1790s to the 1970s, along with works of literature selected for their aesthetic interest and for the light they shed on Austrian society. One major focus is the flowering which derived from the decline and fall of the Habsburg Empire; another is the resurgence of Austrian literature in recent years. Texts are in English translation, and students specializing in German, though they may take the course, are not able to count it towards the department's requirements for a Major or Honours in German.

Prerequisite: Second-year status or permission of the department.

Not offered 1982-83.

German 22.250

German Literature of the Eighteenth Century

The literature of the Enlightenment, Storm and Stress, and Early Classicism, with special emphasis on the works of Lessing, Goethe and Schiller.

Prerequisite: German 22.120, 22.150 or 22.151 or permission of the department.

Texts: Lessing, *Minna von Barnhelm*; Schiller, *Kabale und Liebe*; Wieland, *Musarion*; Goethe, *Werther*, *Iphigenie*, *Faust I*, *Gedichte*.

Day division: Three hours a week.

Robert Gould

German 22.280

German Literature of the Twentieth Century

Representative texts from drama, poetry, and prose fiction, in the period from Hauptmann to Grass.

Prerequisite: German 22.120, 22.150 or 22.151 or permission of the department.

Not offered 1982-83.

German 22.301★

Advanced Spoken German

Practice of oral comprehension and spoken German in discussions, short presentations and casual talks; based on material (films and texts) illustrating concerns of Post-War Germany.

Prerequisite: German 22.201★ or 22.202★ or permission of the department.

Day division, Second term: Three hours a week.

Jutta Goheen

German 22.302★

Advanced Written German

An advanced course focusing on the understanding and command of modern written German; translation exercises with both literary and non-literary texts.

Prerequisite: German 22.202★, 22.211★ or 22.212★ or permission of the department.

Evening division, Second term: Three hours a week.

Basil Mogridge

German 22.312

Twentieth-Century German as a Literary Language

Prevalent features of prose style. Texts by authors such as Rilke, Thomas Mann, Kafka, Grass, Kunze, Christa Wolf.

Prerequisite: German 22.202★ or 22.211★ or 22.212★ or permission of the department.

Not offered 1982-83.

German 22.349★ to 22.360★

Aspects of Modern German Literature (1750-1980)

Courses concentrate on the development of modern German literature: recurring themes, the history of literary genres, reflections of political forces, and the work of individual authors. Half courses may be offered in either the First or Second term. For details concerning course content, students should consult the department.

Prerequisite: German 22.250 or permission of the department.

German 22.349★

The World of Nature in the German Literary Imagination from the Eighteenth to the Twentieth Century

Texts by Klopstock, Hölderlin, Mörike, Droste, Stifter, Rilke, Hesse, among others.

Not offered 1982-83.

German 22.351★

Citizen, Bourgeois, Philistine

The literary history of these concepts from Brentano to Barlach.

Not offered 1982-83.

German 22.353

Drama Since the 1920s

Playwrights include Brecht, Horvath, Durrenmatt, Hacks and Handke, among others.

Not offered 1982-83.

German 22.355★

Literature of the German Democratic Republic

Examples of poetry, fiction and drama.

Evening division, First term: Three hours a week.

Basil Mogridge

German 22.357★

Eduard Mörike

Selected poems and the novel *Maler Nolten*, biographical and literary-historical concerns; the role of music and the fine arts in Mörike's poetry.

Not offered 1982-83.

German 22.358★

Heine and his Times

Heine's poetry and prose; Heine the journalist and the contemporary scene in the arts and politics; other writers of the 1830s and 1840s.

Not offered 1982-83.

German 22.360★

Bertolt Brecht

A study of theoretical and literary works.

Day division, Second term: Three hours a week.

E.M. Oppenheimer

German 22.401★

Formal German Speech (Die deutsche Rede)

A study of the tradition of formal German speech, and practice in oral presentation (Vortrag).

Prerequisite: German 22.301★ or 22.312 or permission of the department.

Not offered 1982-83.

German 22.412

History of the German Language

Significant stages in the development of German: The evolution of its phonetic and grammatical structure, its vocabulary and stylistic norms. The social role of language of the twentieth century: language as a means of manipulation (Nazi Germany; advertising), divided German (FRG and GDR); socio-linguistic facets of contemporary literary language.

Prerequisite: One of German 22.211★, 22.212★, 22.312, 22.330★, 22.430 or permission of the department.

Day division: Three hours a week.

Jutta Goheen

German 22.430

Medieval Language and Literature

Introduction to Medieval German; Medieval narrative style in heroic epic poetry (*Nibelungenlied*) and early vernacular love poetry (*Minnesang*).

Prerequisite: German 22.250 or permission of the department.

Not offered 1982-83.

German 22.441★

German Literature of the Sixteenth Century

Readings in imaginative literature, non-fiction including religious polemics; selected hymns.

Prerequisite: German 22.250 or permission of the department.

Not offered 1982-83.

German 22.442★

German Literature of the Seventeenth Century

Readings in the literature of the German Baroque: prose fiction, drama, and poetry.

Prerequisite: German 22.250 or permission of the department.

Not offered 1982-83.

German 22.449★

The Literature of the German Enlightenment

A study of the literature of the German Enlightenment in its European context, with particular emphasis on Lessing.

Day division, Second term: Three hours a week.

E.M. Oppenheimer

German 22.451★

Goethe I

A detailed study of Goethe's oeuvre before 1800.

Prerequisite: German 22.250 or permission of the department.

Not offered 1982-83.

German 22.452★

Goethe II

A detailed study of Goethe's oeuvre after 1800.

Prerequisite: German 22.250 or permission of the department.

Day division, Second term: Three hours a week.

E.M. Oppenheimer

German 22.469★

Selected Authors of the Nineteenth Century

A detailed study of works by specific authors such as Fontane or Keller or Kleist. 1982-83: Fontane and Keller.

Day division, First term: Three hours a week.

Robert Gould

German 22.470

Seminar on a Literary or Linguistic Topic

Not offered 1982-83.

German 22.471★

Seminar on a Selected Topic

Romantic prose: Examples of the romantic novel and short story from Friedrich Schlegel to Eichendorff; the prose narrative as a vehicle for the propagation of the new ways of thinking and feeling of the period; experimental and traditional structures; the use of verse in romantic prose.

Prerequisite: Permission of the department.

Not offered 1982-83.

German 22.480 to 22.483★

Twentieth Century Studies

Specialized literary and linguistic topics focusing on selected periods, literary genres and linguistic phenomena.

German 22.480

German Poetry and Drama on the Threshold of the Twentieth Century

An examination of trends and movements around 1900 and their interaction, as manifested in lyric poetry and in drama.

Prerequisite: Permission of the department.

Not offered 1982-83.

German 22.481

The German Novel in the Twentieth Century

A study of selected works, primarily from Döblin to Grass.

Not offered 1982-83.

German 22.482★

German Short Story and Prose Poem

"Short prose" since the turn of the century.

Prerequisite: Permission of the department.

Not offered 1982-83.

German 22.483★

Language and Society in Twentieth-Century Germany

Language as a means of manipulation; divided German; socio-linguistic aspects of contemporary literary language. The course will concentrate on one of these aspects. For specific information the student should consult the department.

Not offered 1982-83.

German 22.490★

Tutorial on a Selected Topic

Primarily for Honours students in their final year. A genre, an author or a group of authors is selected; methods of literary criticism are considered.

German 22.491

Tutorial

As above, but offered for full-course credit with a corresponding enlargement of scope and assignments.

German 22.499

Honours Essay

An option for final-year Honours students.

Other Options for Undergraduate Students

The attention of Honours students is drawn to the courses offered by the Comparative Literature Committee.

Department of History

Officers of Instruction

Chairman

R.C. Elwood

Professor Emeritus

R.G. Glover

Professors

J.G. Bellamy

J.L. Black

Desmond G. Bowen

G. Peter Browne

David Chung

Gordon S. Couse

R.C. Elwood

David M.L. Farr

Naomi E.S. Griffiths

J.K. Johnson

H.A. MacDougall

S.R. Mealing

Paul C. Merkley

H. Blair Neatby

John W. Strong

Michael J. Sydenham

S.F. Wise

Associate Professors

Marilyn J. Barber

B. Carman Bickerton

R.T. Clippingdale

J. Nicoll Cooper

E. Peter Fitzgerald

Robert B. Goheen

G.F. Goodwin

Deborah Gorham

F.J.K. Griezic

R.A. Jones

Edward R. Kantowicz

Peter J. King

D.A. Muise

Mark Phillips

Assistant Professor

John H. Taylor

Adjunct Professors

N. Hillmer

Fernand Ouellet

Programs of Study

All students who elect history as a Major or Honours subject, or who undertake graduate work in History, will plan the whole of their program in consultation with a departmental program adviser whose approval is necessary each year before registration is complete. Departmental advisers for students in history programs are:

Major students, E.R. Kantowicz, H.A. MacDougall

Honours students, J.N. Cooper, G.F. Goodwin

Graduate students, P.J. King, J.K. Johnson

Major Programs

Major in History

1. Students majoring in history are to take a minimum of six history courses, as follows:

(a) one 100-level course, to be taken in the First year;

(b) at least two 200-level courses, to be completed by the end of the Second year. A third 200-level course is usually recommended;

(c) at least two 300-level courses, to be taken in the Third year. The department may permit a third 300-level course in lieu of a third 200-level course.

2. Of the six courses required (at the 100, 200 and 300 levels) either at least one from each field or two from each of two fields shall be taken. The fields are:

(a) medieval and early modern Europe;

(b) modern Europe;

(c) North America.

In order to continue in the Major program, a student must attain a grade of C- or better in a First-year history course and must maintain at least a C- average over all history courses taken.

Combined Majors

For Major programs combining history with another subject, the general rule is that they must include at least four courses in history, no more than one of these four at the 100 level and at least one of them at the 300 level.

Honours Programs

Honours in History

1. The Honours program requires at least ten or eleven courses in history, as follows:

(a) one 100-level course, to be taken as part of the First year;

(b) two 200-level courses, to be taken in the Second year;

(c) three 300-level courses, to be taken in the Third year and to include History 24.388;

(d) four or five 400-level courses, to be taken in the Fourth year and to include History 24.490 (Honours Comprehensive) and History 24.491 (Directed Studies).

2. Honours students in the first three years will take at least one course from each of the three following fields: (a) Medieval and Early Modern Europe; (b) Modern Europe; (c) North American.

Students in the Fourth year will take five courses: History 24.490 and 24.491 and three seminars, one of which may be outside the department. Not more than

two seminars may be taken in any one of the following fields (a) Medieval and Early Modern Europe (b) Modern Western Europe; (c) Russian and Eastern Europe; (d) Great Britain and the Commonwealth; (e) Canada; (f) United States.

A student may elect to present a research essay (History 24.499) in place of any two other 400-level courses except History 24.490 and History 24.491.

Students will be required to show a proficient reading knowledge of French. Students may substitute another language with the permission of the department if it is more appropriate to their program.

Students intending to enter the Honours program are advised to do so as early as their intentions are settled, and not later than the beginning of the Third year. All students who meet the general University Honours requirements, and who have a grade-point average of at least 6.0 in history, will be admitted to, and permitted to continue in the Honours program.

Other applicants will be given individual consideration on application to the department. Honours students must have their program approved at registration by a departmental adviser. Honours students in good standing, whose course patterns meet the regulations in *Major in History*, paragraph 2, may revert to the Major program with a B.A. at the end of the Third year. Students who have not taken History 24.388 in their Third year will require the permission of the department to enter the Fourth year. In determining the class of an Honours candidate's degree, the department will average the grades on all history courses, those on the 400-level courses being given double weight.

There is no limit to the number of qualified students admitted to the Fourth year of the Honours program; however, allocation of students among the 400-level seminars will be determined by the department after consultation with individual students. For details consult the Honours adviser. This regulation will not be applied in such a way as to limit a student's opportunity to complete requirements prescribed for a degree in history.

Combined Honours Programs

Students combining history with another subject will be expected to meet the language requirement of the department (see foregoing, *Honours in History*), and to complete at least six courses in history. Only one of these six courses may be taken at the 100 level and at least one must be at the 300 level. The program must include two history courses at the 400 level, one of which must be a seminar.

Cross-Listed Courses

The History Department cross-lists several courses offered by other departments (e.g. several classical civilization courses in the Department of Classics). No

more than two such cross-listed courses may be included in the six courses required for the Major program or the four courses required in Combined Majors. No more than three cross-listed courses may be included in an Honours or Combined Honours program.

Prerequisites

Unless otherwise stated, the prerequisite for any 300-level course is:

1. A 200-level course, preferably in an appropriate field (for fields, see *Major in History*, paragraph 2); or
2. Permission of the department.

The prerequisite for any 400-level course is:

1. Two 300-level courses with one course at either the Second- or Third-year level in an appropriate field; or
2. Permission of the department.

Courses Offered

History 24.100

Turning Points in Modern History

Introductory seminars emphasizing the development of writing, research, and analytical skills through the intensive examination of selected topics in modern history (e.g. the Italian Renaissance, the French Revolution, the impact of science, industrialization, the origins of the world wars). The numbers in each seminar will be kept small in order to provide an opportunity to work closely with individual faculty members.

Day division: Three hours a week.

G.P. Browne, G.F. Goodwin, D. Gorham, P.C. Merkley, M. Phillips (Co-ordinator)

History 24.101

History of Western Civilization

A survey of the major events, ideas, and movements that have shaped western civilization from the fall of Rome to the twentieth century.

Day division: Three hours a week.

J.G. Bellamy (Co-ordinator), D. Gorham, N.E.S. Griffiths, H.A. MacDougall, M.J. Sydenham

History 24.102

The World in the Twentieth Century

An introduction to the ideologies, political movements, economic forces and international conflicts that have shaped the contemporary world.

Evening division: Three hours a week.

E.P. Fitzgerald (Co-ordinator), J.N. Cooper, E.R. Kantowicz, H.B. Neatby

History 24.204

History of the Greco-Roman World

Offered in the Department of Classics as Classical Civilization 13.219.

History 24.205

England during the Middle Ages

A study concentrating on the political development of medieval England and her French possessions, A.D. 1066-1485.

Day division: Three hours a week.

J.G. Bellamy

History 24.207

Social and Economic History of the Middle Ages

A study of the economic development and social history of medieval Europe. Topics include the commercial revolution, feudalism, chivalry, and the crusades. Not offered 1982-83.

History 24.210

Introduction to the History of Ideas

A study of western intellectual development since the Renaissance which considers such movements as humanism, the Enlightenment, romanticism, Darwinism and contemporary ideologies.

Day division: Three hours a week.

D.G. Bowen

History 24.215

Renaissance Europe

The political and cultural history of Europe in the fourteenth, fifteenth and sixteenth centuries, with emphasis on the Italian Renaissance and its diffusion into England and France.

Day division: Three hours a week.

M. Phillips

History 24.220

Europe in the Era of the World Wars

A history of Europe from the turn of the century to 1950 which focuses on the impact of the two world wars. Emphasis is placed on war as an agent of economic and social change, although traditional themes such as domestic politics, ideological conflict and international relations are included.

Day division: Three hours a week.

E.P. Fitzgerald

History 24.222

East Asian Civilization

Basic characteristics of traditional East Asian civilization in China, Korea and Japan. Main patterns of the Asian responses which emerged under the impact of the expanding West at the dawn of modern Asia from the seventeenth century to the early nineteenth century.

Not offered 1982-83.

History 24.224

The Revolutionary Tradition in Europe, 1789-1900

Beginning with the French Revolution of 1789 the

course includes such significant movements as romanticism, nationalism, the rise and implications of industrialism, and the development of socialist theory culminating in Marxism.

Day division: Three hours a week.

H.A. MacDougall

History 24.230

Canada from 1763

The political, economic and social development of the British North American colonies of 1763 to the Canada of today. Recommended as the introductory course in Canadian history for Majors and Honours history students. Credit will not be granted for both History 24.230 and 24.231.

Day division: Three hours a week.

M.J. Barber, S.R. Mealing

History 24.231

Historical Introduction to Modern Canada

A study of the political, economic and social development of modern Canada. The course provides a survey of Canadian history since 1760, but the emphasis is on the developments in the twentieth century. Recommended for students who are not majoring in history. Credit will not be granted for both History 24.230 and 24.231.

Day and Evening divisions: Three hours a week.

F.J.K. Griezic, J.K. Johnson, H.B. Neatby, J.H. Taylor

History 24.235

Colonial Frontier Societies

An examination of four or five frontier societies in the eighteenth and nineteenth centuries, most of them Canadian, in which the presence of either European or North American metropolitan influences were critical to the character of development.

Not offered 1982-83.

History 24.240

History of the United States of America

A survey of United States politics and society since the American Revolution.

Day division: Three hours a week.

G.F. Goodwin, E.R. Kantowicz

History 24.250

Modern England, 1460-1960

A survey of significant political and social developments in England from the mid-fifteenth to the mid-twentieth century.

Day division: Three hours a week.

J.N. Cooper, R.B. Goheen

History 24.256

Comparative History of England and France

A comparison of political and social developments in two major Western European countries, from the seventeenth to the nineteenth century.

Day division: Three hours a week.

M.J. Sydenham

History 24.260

History of Russia and the U.S.S.R.

A survey of Russian history from Kiev to the present, with emphasis on the period from the reign of Peter the Great to the Revolution of 1917.

Day division: Three hours a week

R.C. Elwood

History 24.275

History of Africa

An introduction to the history of Africa. The first half is devoted to the period prior to European colonization with emphasis on West African states and empires; the second half deals with resistance to colonization, European colonial rule, independence and liberation movements.

Not offered 1982-83.

History 24.278

The Middle East: 1798 to the Present

Offered in the Department of Religion as Religion 34.278.

History 24.280

The Diplomatic History of Europe, 1815-1914

A survey of diplomatic history from the Congress of Vienna to the outbreak of the First World War.

Day division: Three hours a week.

R.A. Jones

History 24.305

Cultural and Intellectual History of the Middle Ages

An examination of western European cultural development from the patristic age to the fifteenth century. Consideration is given to literature, theology, education, and political and social thought. Readings in primary and secondary sources. (Also listed as Religion 34.305.)

Not offered 1982-83.

History 24.309★

Studies in Greek History and Institutions

Offered in the Department of Classics as Classical Civilization 13.321★.

History 24.311★

Studies in Roman History and Institutions

Offered in the Department of Classics as Classical Civilization 13.322★.

History 24.312★

The Italian Renaissance

Studies in political, social and intellectual history, concentrating on Florence and Venice. Readings are in both primary and secondary works. Some representative themes are: Florence and Venice compared; the family and the individual; humanism and the city.

Day division, First term: Three hours a week.

M. Phillips

History 24.313★

Historical Writing and Political Thought in Renaissance and Reformation Europe

This course examines a series of political and historical thinkers in relation to early modern society. Special attention is given to the evolution of historical narrative.

Day division, Second term: Three hours a week.

M. Phillips

History 24.314★

Studies in Ancient History and Institutions

Offered in the Department of Classics as Classical Civilization 13.323★.

History 24.316★

The French Revolution

A study of the origins, course and immediate consequences of the transformation of Old France into a modern nation. After some consideration of the causes of the Revolution, particular attention is given to the evolution in theory and practice of revolutionary democracy and nationalism, these being considered in relation to local, national, and international events.

Day division, Second term: Three hours a week.

M.J. Sydenham

History 24.317★

Twentieth-Century France

A study of France and of French foreign and colonial policy from the turn of the century to the present day, with emphasis on the Gaullist period. Themes and topics include the Dreyfus Affair, the republican synthesis and its breakdown, the collapse of 1940 and the Vichy regime, the post-war colonial crises, the establishment and evolution of the Fifth Republic.

Not offered 1982-83.

History 24.321★

The Enlightenment

A study in eighteenth-century western European thought as manifested by the arts and letters. Particular attention is given to the French *philosophes*.

Day division, First term: Three hours a week.

G.S. Couse

History 24.322★

The Counter-Enlightenment

A study of a complex of intellectual movements — romanticism, conservatism, historicism, religious revival, and idealism — that ran counter to the Enlightenment in western Europe between about 1750 and 1850.

Prerequisite: History 24.321★ or permission of the department.

Day division, Second term: Three hours a week.

G.S. Couse

History 24.323

Religion and the State, Europe 1815-1965

A study of selected problems in modern religious history from the end of the French Revolution to Vatican Council II. Areas to be represented include the rise and decline of liberal Catholicism, the Oxford movement, Christian Socialism, Bismarck and the churches, the growth of anti-Semitism, Zionism, Vatican Council II.

Not offered 1982-83.

History 24.326★

Canada Before and After the Conquest

An examination of *Canadien* society from 1730 to 1774.

Day division, Second term: Three hours a week.

B.C. Bickerton

History 24.327★

Introduction to Local History

An examination of the methods and approaches that characterize recent British, French, and North American writing on local history.

Not offered 1982-83.

History 24.328★

Eastern Ontario Communities

The local history of Eastern Ontario, with particular reference to the settlement and development of the Ottawa Valley in the nineteenth century.

Prerequisite: History 24.327★ or permission of the department.

Not offered 1982-83.

History 24.329★

Canadian Urban History

An introduction to urban growth and development in Canada. The course considers the historical basis of the urban pattern and its influence in Canada, and the internal structure and institutions of Canadian cities. In particular, Ottawa is used as a case study for classroom and research purposes.

Not offered 1982-83.

History 24.330★

Social History of Canada

Studies in the structure and values of Canadian societies from the eighteenth to the early twentieth centuries.

Day division, First term: Three hours a week.

S.R. Mealing

History 24.331★

French Canada since Confederation

A political and intellectual history of French Canada with emphasis on the development of French Canadian nationalism. Students are expected to read both French and English sources.

Day division, Second term: Three hours a week.

H.B. Neatby

History 24.332★

The Maritime Provinces 1750-1900

The social, religious, ethnic and economic background of the politics of the Maritime Provinces.

Day division, Second term: Three hours a week.

B.C. Bickerton

History 24.333★

Upper Canada and Ontario

An introduction to the economic, social, and political development of Upper Canada and Ontario in the eighteenth and nineteenth centuries.

Day division, Second term: Three hours a week.

J.K. Johnson

History 24.334★

Canada-United States Relations

An examination of Canada-United States relations, with particular attention to the relationship in the twentieth century.

Not offered 1982-83.

History 24.335★

Canadian Labour Movements since Confederation

A study of workers' responses to the evolving Canadian capitalist system.

Evening division, Second term: Three hours a week.

F.J.K. Griezic

History 24.336★

Canadian External Relations

The development of Canadian attitudes and policies toward external affairs in the years since 1867, with particular emphasis to the twentieth century.

Day division, First term: Three hours a week.

D.M.L. Farr

History 24.337

The Emergence of the Political Tradition in Canada

An examination of Canadian politics (politicians, parties, ideas and social context) from the late eighteenth century to the present. Special emphasis is given to the post-Confederation period.

Day division: Three hours a week.

R.T. Clippingdale

History 24.338★

Canadian Immigration and Settlement

A study of immigration to Canada and of the adaptation of immigrants to their new environment from the beginning of the nineteenth century to the Second World War.

Day division, First term: Three hours a week.

M.J. Barber

History 24.339★

History of Western Canada

An introduction to the economic, social and political evolution of the four westernmost provinces from European penetration to the early present.

Day division, First term: Three hours a week.

F.J.K. Griezic

History 24.341★

The American Revolution

A study of the causes and course of the movement leading to the independence of the United States. Particular emphasis is given to ideology, society, local issues and revolutionary organization.

Day division, First term: Three hours a week.

P.J. King

History 24.343★

The United States in the Twentieth Century, I, to 1940

Some principal themes in the history of the United States from the progressive era to the conclusion of the New Deal era.

Evening division, First term: Three hours a week.

P.C. Merkley

History 24.344★

The United States in the Twentieth Century, II, since 1940

Some principal themes in the history of the United States since the New Deal era.

Evening division, Second term: Three hours a week.

P.C. Merkley

History 24.345★

American Urban History

An introduction to the major patterns of urban growth and development in the United States. Particular cities are used as case studies, but an attempt is made to generalize about the functions, shapes, and problems of cities. The major emphasis is on the nineteenth century.

Day division, Second term: Three hours a week.

E.R. Kantowicz

History 24.346★

American Immigration and Ethnic Groups

An introduction to the major currents of both urban and rural immigration to the United States and the formation of distinct ethnic groups in American society. The major emphasis is on the period of unrestricted immigration from 1820 to 1921.

Not offered 1982-83.

History 24.347★

The Negro in the United States

A study of the Negro in the United States, which concentrates on his experience under slavery and the recurring themes of integration and separatism after emancipation.

Evening division, Second term: Three hours a week.

G.F. Goodwin

History 24.348

American Intellectual History

An examination of American thought from the colonial period to the twentieth century, with emphasis on political, social and religious ideas and their relation to American society and institutions.

Day division: Three hours a week.

P.J. King

History 24.349★

History of United States Foreign Policy since 1865

A study of the emergence of the United States as a world power in its international and domestic context, with emphasis on the twentieth century.

Day division, First term: Three hours a week.

G.F. Goodwin

History 24.350

Modern British and Canadian Constitutional History

A survey of themes in the constitutional development of Britain since 1688 and Canada since 1763.

Day division: Three hours a week.

G.P. Browne

History 24.354

Women and Society: 1700 to the Present

An examination of the changes that have taken place in the position of women since the eighteenth century and the relationship of these changes to other social, economic, and intellectual developments. The course deals with developments in Canada, Western Europe, and the United States.

Day division: Three hours a week.

M.J. Barber, D. Gorham

History 24.358

Politics and Society in England circa 1500-1850

An enquiry into the relationship between society and politics in England.

Day division: Three hours a week.

J.N. Cooper, R.B. Goheen

History 24.360

History of the U.S.S.R.

A history of the politics, diplomacy, culture and society of Soviet Russia from 1917 to the present.

Day division: Three hours a week.

J.L. Black

History 24.361★

The Russian Empire

The expansion and development of the Russian Empire from the fourteenth century to 1917, with emphasis on Siberia and Central Asia.

Not offered 1982-83.

History 24.365★

The Soviet Union in International Affairs from Comintern to Cold War

A study of Soviet diplomatic activity and foreign policy principles from the founding of Comintern in 1919 to the fall of Khrushchev in 1964. Attention will be spread evenly over four units of study: Comintern and World Revolution (1919-28); Socialism in one Country (1929-43); Origins of the Cold War (1943-48); Global concerns and Peaceful Co-existence (1948-64).

Evening division, First term: Three hours a week.

J.L. Black

History 24.366★

Modern East Central Europe

A study of the political and diplomatic history of East Central Europe since 1848 with emphasis on Poland and Czechoslovakia.

Not offered 1982-83.

History 24.370

The Rise and Fall of the British Empire

The evolution of the British Empire following the American Revolution analyzing the forces behind its establishment, emphasizing political, economic and social factors and concluding with its transformation into the modern Commonwealth.

Not offered 1982-83.

History 24.371★

Imperialism, 1852-1914

A study of the expansionist policies pursued by the European powers, and the United States in the second half of the nineteenth century. Several examples of expansion are analyzed as historical case studies in order to test general theories that claim to explain imperialism, in particular those which link it with the development of capitalism.

Not offered 1982-83.

History 24.372★

Imperialism and Colonialism in North Africa and the Near East

A study of how Europe established political, economic, and cultural dominance over the Muslim states of the Mediterranean basin; and how the colonial regimes implanted there subsequently developed and were eventually overthrown. Themes include imperial rivalry and conquest, indigenous collaboration and resistance, the economic and social impact of western domination.

Not offered 1982-83.

History 24.377

The Irish in Modern History: A Problem in Historical Ethnicism

A study of the development of the two peoples of Ireland, Anglo-Irish relations since Elizabethan times, the influence of the diaspora Irish in home affairs, and the contribution of the Irish to developments in England, Canada, the United States and other areas. Particular attention is paid to the problem of religion in Irish affairs.

Evening division: Three hours a week.

D.G. Bowen

History 24.378★

The Reformation Era in European History, 1409-1648

A study of the papacy and the reformed churches, from the Council of Pisa to the Treaty of Westphalia. The radical changes in the relationship between church, state, and society in Western Europe during this period are examined.

Evening division, First term: Three hours a week.

D.G. Bowen

History 24.380

International History, 1914-1956

A survey of international history in the First World War; peacemaking 1919-1923; inter-war diplomacy and the origins of the Second World War; the relations of the powers in the Second World War; and post-war relations and the Cold War.

Day division: Three hours a week.

R.A. Jones

History 24.385★

Modern China

A political history of China from the early nineteenth century to the present with emphasis on Chinese reactions to the western impact.

Not offered 1982-83.

History 24.386★

Modern Japan

The political, social and economic development of Japan during the Meiji, Taisho and Showa periods.

Day division, First term: Three hours a week.

History 24.388

Historical Theory and Method

An examination of questions concerning the nature and value of historical enquiry and the meaning of the course of history.

Day division: Three hours a week.

P.C. Merkle

History 24.405

Selected Problems in Medieval History

A seminar on one or more of the following topics: crime and criminal law in medieval England, heresies and social movements, apocalyptic speculation.

Day division: Three hours a week.

J.G. Bellamy

History 24.412

Machiavelli and His Age

An intensive examination of Machiavelli's political, historical, military, diplomatic, literary, and personal writings. His life and thought are explored in the context of the political, intellectual, and social issues that confronted Italians in the late Renaissance. Representative topics include: ancient political thought, the Florentine historiographical tradition, the role of the Papacy in Italian politics, the influence of Venice.

Not offered 1982-83.

History 24.416

The French Revolution

A seminar in selected problems in the history and interpretation of the French Revolution, with particular reference to the development of different concepts of democracy.

Day division: Three hours a week.

M.J. Sydenham

History 24.430

The Formation of the British North American Societies, 1760-1848

The formation and consolidation of colonial societies from a variety of comparative perspectives are featured. Immigration, political evolution, and economic development are explored.

Evening division: Three hours a week.

J.K. Johnson

History 24.431

The Making of the Nation, 1849-1896

The political, economic, social, and intellectual transformation of British North America into the Dominion of Canada is examined.

Day division: Three hours a week.

J.H. Taylor

History 24.437

The National Experience, Canada, 1896-1939

Patterns of political, economic, social, and intellectual change will be explored. Attention will be devoted to such themes as class, ethnicity, feminism, regionalism and nationalism.

Day division: Three hours a week.

M.J. Barber

History 24.439

Modern Canada, 1939-1976

Selected aspects of Canadian industrialization, urbanization, unionization, federalism, regionalism, feminism and nationalist ideologies.

Evening division: Three hours a week.

F.J.K. Griezic

History 24.440

A Selected Period in United States History

A seminar which considers the relationship among the political, social, economic and intellectual aspects of one of the following periods: **(a)** The early national periods, 1783-1816; **(b)** the age of Jackson, 1824-46; **(c)** the progressive era, 1896-1912; **(d)** the interwar years, 1920-41; **(e)** Since 1941. For 1982-83 the period will be: **(c)**

Day division: Three hours a week.

E.R. Kantowicz

History 24.442

North American Colonial Rebellions and Independence Movements, 1675-1837

A study of North American colonial societies through a comparative treatment of various aspects of insurrections and independence movements within the North American colonies of Great Britain and Spain from the late seventeenth to the early nineteenth centuries. The topics considered are selected from such occurrences as Bacon's Rebellion, Leisler's Rebellion, the Regulators, the American Revolution, the Mexican War of Independence, and the Canadian Rebellions of 1837.

Not offered 1982-83.

History 24.457

Selected Problems in Tudor and Stuart History

A seminar concentrating on aspects of English group and community organization and power in the Tudor and early Stuart period.

Not offered 1982-83.

History 24.458

Selected Problems in Nineteenth Century British History

A seminar on mid-nineteenth century social reform and its social background.

Day division: Three hours a week.

J.N. Cooper

History 24.459

Selected Problems in the History of Women and the Family: from the Industrial Revolution

A seminar on selected problems relating to the changes in women's lives and in the structure of the family that have occurred since the eighteenth century. The course is concerned with one or more of the following issues: women's changing work patterns; the rise of the women's movement; changing attitudes towards childhood; changing views of sexuality. While the main focus is on Britain, North American and European experience is also examined, for comparative purposes.

Evening division: Three hours a week.

D. Gorham

History 24.460

Selected Problems in Russian History

A seminar on selected problems relating to the expansion and decline of Imperial Russia.

Day division: Three hours a week.

R.C. Elwood

History 24.461

Selected Problems in Soviet History

A seminar on selected problems relating to the establishment and subsequent course of the Soviet Union. Not offered 1982-83.

History 24.470

Selected Problems in Modern Colonial and Imperial History

A seminar concerned with the establishment and evolution of modern colonial empires, formal and informal, since the eighteenth century. In 1982-83 the seminar will focus on constitutional, commercial, settlement, frontier and humanitarian developments in the "Second" British Empire, 1774-1860.

Evening division: Three hours a week.

G.P. Browne

History 24.480

Selected Problems in the Diplomacy of the Great Powers, 1906-39

A seminar on selected problems in diplomatic history from the origins of the First World War.

Day division: Three hours a week.

R.A. Jones

History 24.481

Diplomatic and Strategic Problems of the Second World War

A seminar on problems selected from major politico-strategic issues of the outbreak, conduct and aftermath of the Second World War.

Not offered 1982-83.

History 24.490

Honours Comprehensive

Required of candidates for Honours in history, this is a written examination in a special field with general questions relating to historical thought.

Day and Evening divisions.

History 24.491

Directed Studies

A course required of candidates for Honours in history in their Fourth year. It includes supervised reading and reports in an area of history.

Day and Evening divisions.

History 24.499

Honours Research Essay

Open to candidates for Honours in history in their Fourth year with the permission of the department. B+ standing in history courses is expected. The subject for research is settled in consultation with the department and a supervisor will be assigned. A written outline of the project must be submitted to the Honours Committee one week before the last day for course changes. The candidate will be orally examined upon the essay after presentation. This course carries double credit.

Day division.

Courses Planned for Evening Division

Each year the History Department offers a wide selection of courses in the Evening division at the 100, 200 and 300 levels which are as representative as possible of the fields required for the B.A. degree. At least three 400 level seminars are also offered annually in the Evening.

Arts and Social Sciences

Humanities 10.100

An examination of selected works, from Biblical times to the present, illustrating the various dominant views on the nature of man and his attempts to understand himself and the world about him.

Prerequisite: First-year standing or higher.

Not offered 1982-83.

Humanities 10.200★

An examination of selected works illustrating various dominant views on the nature of man and his attempts to understand himself and the world about him in the context of the twentieth century as seen from points of view of history, philosophy, social science and literature.

Prerequisite: Second-year standing or higher.

Not offered 1982-83.

Interdisciplinary 04.288

Introduction to Women's Studies

A survey course, designed to increase the student's understanding of the position of women in contemporary society. The course offers an introduction to such issues as biological and cultural sex differentiation, women and literature, women and religious institutions, women and politics, women and social and health services and women and the law. A brief introduction to the intellectual and social origins of feminism and a survey of women's place in Western European history provides a context for examining women's position in contemporary society.

Evening division: Lectures three hours a week.

D. Gorham, J. Vickers

Interdisciplinary 04.390

The Literature of Existentialism

A study of the origins, development, and principal characteristics of existentialist literature as the paramount expression of the writer's concern with *la condition humaine*. (Also listed as English 18.390.) All assigned readings will be in English.

Prerequisite: Permission of the Department of English.

Not offered 1982-83.

Science

Science 60.100

Man in His Environment

This course is designed to acquaint students in arts, social sciences and engineering, with the methodology of science in approaching a problem. Included is a general description of the aims and methods of experimental science with an emphasis on environmental and ecological problems. The historical aspects of scientific discoveries are examined, particularly those that are influencing present society. Particular attention is directed to the interactions of science and

society and to man's influence and impact on the natural environment. In a framework of the natural sciences, emphasis is on the limits of the natural systems in which man is a member.

Day division: Lectures three hours a week.

H.H.J. Nesbitt

Interdisciplinary Science 00.200

Physical Anthropology (Introduction to the Study of Prehistoric Man)

This course is designed to acquaint students of the Second and Third years (who need not have taken any previous courses in biology) with the evolutionary history of man. The lectures and demonstration periods make extensive use of the University's large collection of casts of the fossils that have been found to date and upon which the present history of the descent of man is based. Persons intending to take this course are advised to consult with the instructor in the spring before beginning the course for a list of the suggested reading.

H.H.J. Nesbitt

Technology, Society, Environment Studies

Our society increasingly faces problems requiring communication among specialists of different disciplines. This is at least in part a result of increasing specialization of people and jobs. The multidisciplinary problems raised by the interaction of an industrial society with its environment, its resource base, and its complex technical systems are addressed by three courses organized by the Technology, Society, Environment Committee. These courses develop the multidisciplinary perspective through problem units on topics including energy, the industrial revolution, pollution, transportation, political regulation of technology, and the consumer society concept, and through team projects which bring together students working in different disciplines. The three courses are Technology, Society, Environment 59.300, 59.401★ and 59.402★. They are described on pp. 439-441.

Other Courses

African Studies, see p. 432.

Asian Studies, see p. 433.

Medieval Studies, see p. 438.

Urban Studies, see p. 442.

Women's Studies, see p. 443.

Directed Interdisciplinary Studies, B.A.

For information about the B.A. Directed Interdisciplinary Studies program see p. 131.

Department of Italian

Officers of Instruction

Chairman

M. Ciavolella

Associate Professor

M. Ciavolella

Assistant Professors

F. Loriggio

C. Persi Haines

Instructor

G. Panico

Supervisors of Majors and Honours Studies

M. Ciavolella, C.P. Haines

General Information

The department offers Major, Combined Major and Combined Honours programs in Italian. Interested students should consult members of the department to plan their programs in accordance with existing and expected future courses. The department endeavours within its limited resources to offer essential courses for these programs annually during the Evening division.

All sectioned courses are normally scheduled in the Evening (Italian 26.105★, 26.110★, 26.115, 26.120★, 26.150, 26.155, 26.201★, 26.202★), and three literature courses, one at the 200 level, one at the 300 level and one at the 400 level are normally available annually in the Evening division.

Study Abroad

The department has established the policy of giving language and civilization courses every summer in Italy. Interested students should contact the department early in the year for information regarding financial assistance, itinerary, and courses planned.

Major Programs

The requirements for the Major in Italian are a minimum of five courses after Italian 26.150 or equivalent, three of which must be Italian 26.205 and two literature courses at the 300 or 400 level. It is possible as well to take a Combined Major in Italian and another discipline. Requirements of the department for the Combined Major are four courses in Italian after Italian 26.150, including 26.205 and a 300 or 400 level literature course. Italian 26.210★, 26.211★, 26.350★ will be

considered credits as arts options but not credits towards an Italian program for students enrolled in Major, Combined Major or Combined Honours programs.

Combined Honours Program

Students admitted to Combined Honours programs are required to complete at least twenty credits of which at least six must be in Italian beyond the Intermediate year level. Their programs should include Italian 26.205 and two literature courses at the 300 level and one at the 400 level. Italian 26.491, Special Studies, a directed reading course, is available every year to students who wish to investigate a particular literary genre or topic.

Courses Offered

Italian 26.105★

Spoken Italian, Level 1

A beginners' course designed to give the student fundamentals of spoken Italian. Intensive practice in oral expression and comprehension, reading, occasional written work.

Prerequisites: No knowledge of standard Italian or of any dialect is assumed.

Day division, First and Second terms; Evening division, Second term: Three hours a week plus one hour of laboratory.

Italian 26.110★

Written Italian

A beginners' course designed to provide the student with the basic elements of Italian structures. Grammar, practice in writing and reading.

Evening division, First term; Day division, Second term: Three hours a week.

Italian 26.115

Introduction to Italian

A beginners' course designed to give the student the fundamentals of written and spoken Italian. Grammar, reading and oral practice.

Prerequisite: No previous knowledge of Italian or any of Italian dialect is assumed

Day and Evening divisions: Three hours a week plus one hour of laboratory.

Italian 26.120★

Spoken Italian, Level II

An advanced sequel to Italian 26.105★, this course is essentially oriented towards oral communication.

Prerequisite: Italian 26.105★ or 26.115.

Day division, First and Second terms: Three hours a week plus one hour of laboratory.

Italian 26.150

Intermediate Italian

A course intended to consolidate and supplement knowledge of the language and culture acquired in Italian 26.115. Reading of literary texts, composition and oral practice.

Prerequisites: Italian 26.105★ and 26.110★, 26.115 or equivalent.

Day division: Three hours a week plus one hour of laboratory.

Italian 26.155

Intermediate Italian for Dialettologi

A course designed for students of Italian origin who speak Italian dialects but have had no formal training in standard Italian.

Prerequisites: Permission of the department.

Not offered 1982-83.

Italian 26.201★

Italian Conversation

Conversation and discussion of general and current problems, including occasional written work.

Prerequisite: Italian 26.150, 26.155, 26.120★ or permission of the department.

Day division, First term: Three hours a week.

G. Panico

Italian 26.202★

Italian Composition

A course designed to utilize the achievements attained in Italian 26.150, particularly with the view to enabling students to write fluently in Italian.

Prerequisite: Italian 26.150, 26.155 or permission of the department.

Day division, Second term: Three hours a week.

G. Panico

Italian 26.205

Introduction to the Study of Italian Literature

This course is designed to introduce the student to Italian literature. Emphasis will be placed on the textual analysis of representative works. Required for Majors and Honours.

Prerequisites: Italian 26.201★ and 26.202★ or permission of the department.

Day division: Three hours a week.

F. Loriggio

Italian 26.210★

Italian Civilization I: Literature, Arts and Society in Italy from the Thirteenth Century to the Renaissance

This half course, given in English, deals with the literary, artistic, social development of Italy.

Not offered 1982-83.

Italian 26.211★

Italian Civilization II: Literature, Arts and Society in Italy from the Unification to the Present Time

This half course, to be given in English, deals with the literary, artistic, social development of Italy.

Day division, Second term: Three hours a week.

Italian 26.215★

Italian Heritage

The aim of this half course is to provide the student with an understanding of what Italian culture is and has been. "Culture" is intended in the larger sense: popular art forms are studied along with the more official ones. The course is taught in Italian and focuses, on a rotating basis, on the present or one period of Italian history.

Not offered 1982-83.

Italian 26.220

Background to the Study of Italian Literature

A first-hand introduction to the culture, history and art of Italy. The course, given in Italy, is offered in both Italian and English. The Italian section is designed for students who intend to take courses in a Major or Honours program. Students taking the English section will receive credit as an arts option.

Italian 26.302★

Advanced Composition and Translation

An advanced sequel to Italian 26.202★.

Prerequisite: Italian 26.202★ or permission of the department.

Day division, First term: Three hours a week.

F. Loriggio

Italian 26.310

Italian Literature I: From the Thirteenth Century to the Beginning of the Renaissance

This course traces the development of the genres of Italian literature during the period indicated. Each of the genres, i.e. poetry, novella, theatre, is given separate and extensive attention.

Prerequisite: Italian 26.205 or permission of the department.

Day division, Three hours a week.

C.P. Haines

Italian 26.320

Italian Literature II: From the Beginning of the Renaissance to the Baroque

This course traces the development of the genres of Italian literature during the period indicated. Each of the genres, i.e. poetry, novella, heroic poem, theatre, is given separate and extensive attention.

Prerequisite: Italian 26.205 or permission of the department.

Not offered 1982-83.

Italian 26.330

Italian Literature III: From the Baroque to the Twentieth Century

This course traces the development of the genres of Italian literature during the period indicated. Each of the genres, i.e. poetry, novel, theatre, is given separate and extensive attention.

Prerequisite: Italian 26.205 or permission of the department.

Not offered 1982-83.

Italian 26.350★

Italian Literature in Translation

This half course, taught in English, using translated texts, focuses each year on different genres and or different periods of Italian literature. Particular attention is given to those aspects of more relevance to the general European literary and cultural background (for example: Petrarchism, Boccaccio and the novella tradition, Renaissance epic poetry and romances, Renaissance literary theory, Futurism, Neorealism, etc.).

Not offered 1982-83.

Italian 26.400

Dante

An intensive study of Dante and his age with particular reference to the *Divina Commedia*.

Prerequisites: Permission of the department.

Not offered 1982-83.

Italian 26.410

Italian Theatre: From Goldoni to Pirandello

A study of Italian dramatic works with particular emphasis on the theatre reform of Carlo Goldoni and on the theatre of Luigi Pirandello.

Prerequisites: Permission of the department.

Day division: Three hours a week.

Not offered 1982-83.

Italian 26.420

Contemporary Italian Novel

A study of selected Italian contemporary novels.

Prerequisites: Permission of the department.

C.P. Haines

Italian 26.430

Twentieth Century Italian Poetry

A study of the most representative contemporary Italian poets.

Prerequisites: Permission of the department.

Not offered 1982-83.

Italian 26.491

Special Studies

A reading or research course for selected students who wish to investigate a particular literary genre or author in greater depth than it is covered in other courses. Available to Fourth-year students only.

Prerequisites: Permission of the department.

Officers of the School

Director

G. Stuart Adam

Supervisor of Graduate Studies

Anthony Westell

Co-ordinator of One-Year Program

Marvin Schiff

Supervisor of Undergraduate Studies, Journalism

Roger Bird

Supervisor of Undergraduate Studies, Mass Communication

John R. Weston

Professors Emeriti

Wilfrid Eggleston

Wilfred Kesterton

Professors

G. Stuart Adam

Murray Goldblatt

T. Joseph Scanlon

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Brian Taylor

David Van Praagh

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Peter Johansen

Eileen Saunders

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Barbara Freeman

Visiting Associate Professor

Cameron Graham

Sessional Lecturers

Elly Alboim

Jack Fleischmann

Don McGillivray

Paul McLaughlin

Bruce Paton

George Pollard

Brian Sarjeant

Field Work Supervisors

Rod Currie (*Canadian Press*)

Fran Cutler (*Canadian Broadcasting Corporation*)

Max Keeping (*CJOH*)

Don Leger (*CFRA*)

Robert Lewis (*Maclean's Magazine*)

Arch MacKenzie (*Canadian Press*)

Steven Madely (*CFGQ*)

Sidney Margles (*Standard Broadcasting*)

Al McKay (*CJOH*)

Bob Monteith (*The Toronto Sun*)

Phil O'Reilly (*Information Services Branch, Canadian Government Office of Tourism*)

Nelson Skuce (*The Citizen, Ottawa*)

Paul Taylor (*CKOY*)

Bob Walker (*The Gazette, Montreal*)

Norris Whitfield (*Canadian Broadcasting Corporation*)

Advisory Council

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J.I. Jackson, *Registrar of the Faculties of Arts and Social Sciences*

Thomas J. Ryan, *Vice-President (Academic) of the University*

General Information

Bachelor of Journalism Honours Programs

The School of Journalism offers the degree of Bachelor of Journalism with Honours through two programs of study. Students entering the university after Senior Matriculation complete a four-year course of twenty-one credits. Students who are already university graduates may qualify for a one-year program of five and one-half credits.

The aim of these programs is not to train technologists; it is to give students the ability to investigate, interpret and communicate intelligently in any of the mass media. To this end, courses are designed to give students both professional skills and an understanding of how media function, in order that they can adapt to the various areas of modern journalism. Advantage is taken of the many resources outside the university provided by the location of the university in the national capital.

Journalism courses, with the exception of a few seminars, are offered in the Day division only. Optional courses in the four-year program, however,

may be offered in the Evening division, and Second year requirements are sometimes offered in the Summer session.

Bachelor of Arts in Mass Communication

The School of Journalism offers Major and Honours undergraduate programs in Mass Communication. See p. 218.

Graduate Programs

The School of Journalism offers the Master of Journalism degree. A Master of Arts program with a specialization in communications is offered through the Institute of Canadian Studies. For further details consult the Graduate Studies and Research Calendar.

Bachelor of Journalism Honours Four-Year Program

Program Requirements

Candidates for the degree of Bachelor of Journalism take a total of twenty-one credits, normally in this sequence:

First Year

Journalism 28.100 and 28.101★;

A language course, preferably French* (acceptable First-year level French courses are French 20.102 and 20.108);

Three approved options.

*Students may substitute an approved option if they can demonstrate a proficiency in the French language to the degree required to report accurately in English on statements and research materials in French. Students whose native language is other than English may have the language requirement waived.

Second Year

Journalism 28.200 and 28.220 (Note: 28.220 is a two-credit course);

An approved credit in Canadian history*, normally History 24.230 or 24.231;

One approved option.

*Students who expect to practise Journalism in another country may be advised to choose a different history course.

Third Year

Journalism 28.321★, 28.351★ and 28.320 (Note: Journalism 28.320 is a two-credit course);

Two and a half approved options. These options must include at least one but may include additional journalism credits. Furthermore, a student should continue working toward the departmental requirement that before graduation four credits must be taken in a field other than journalism, with at least one of these credits at the 300 level or higher. The courses available as options are: Journalism 28.215, 28.300, 28.305★,

28.306★, 28.333, 28.345, 28.352★, Mass Communication 27.201, 27.290 and 27.311.

Fourth Year

Journalism 28.421 and 28.498;

Three approved options. Students will note the departmental requirement described above regarding non-journalism courses. The journalism options offered in Fourth year are Journalism 28.400 and 28.490.

Note:

Journalism 28.220 and 28.320 were double-weighted, effective in the 1981-82 academic year. As a result, students who previously completed Journalism 28.220 but not 28.320 must present at least nine and a half journalism credits in their twenty-one-credit program, instead of the previous eight and a half. Students who enrolled in Journalism 28.220 in 1981-82 or subsequent years must present at least ten and a half journalism credits. Students who completed both Journalism 28.220 and 28.320 before the 1981-82 academic year must present only eight and a half journalism credits. (These journalism credits do not include the required language and history courses.)

Combined Honours

Honours programs may be taken by students in the four-year undergraduate program in which journalism is combined with other disciplines by arrangement. The minimum requirements are the same as those for the Bachelor of Journalism with Honours, with the exception that students in Combined Honours may write their graduating research paper for either of the participating departments.

Combined Honours, Journalism and Economics

See p. 133 and consult the Department of Economics.

Combined Honours, Journalism and English

See p. 143 and consult the Department of English.

Combined Honours, Journalism and Mass Communication

See p. 218.

Combined Honours, Journalism and Political Science

See p. 237 and consult the Department of Political Science

Combined Honours, Journalism and Law

Course requirements are:

1. Journalism 28.100, 28.101★, 28.200, 28.220, 28.320, 28.321★, 28.351★, 28.421 and, if the Honours degree sought is the Bachelor of Journalism, Journalism 28.498;

Note:

Journalism 28.220 and 28.320 are two-credit courses.

2. at least six but not more than nine credits in law according to the following prescribed pattern: Law 51.100 or the combination of 51.101★ and 51.102★; 51.200; at least one law credit at the 300 level or higher; at least one other law credit at the 400 level; if the degree sought is a Bachelor of Arts, an Honours essay in Law (51.498) or designated equivalent; but if the Honours essay is in journalism, Law 51.490, Directed Studies in Law; at least one other law credit which may not include Law 51.201;

3. a language credit other than English (preferably French) (acceptable First-year level French courses are French 20.102 and 20.108);

4. an approved credit in Canadian history. (Students who plan to practise Journalism in another country may be advised to choose a different history course.);

5. approved options to make up a program total of twenty-one credits.

Combined Honours, Journalism and Philosophy

Course requirements are:

1. Journalism 28.100, 28.101★, 28.200, 28.220, 28.320, 28.321★, 28.351★, 28.421 and, if the Honours degree sought is the Bachelor of Journalism, Journalism 28.498;

Note:

Journalism 28.220 and 28.320 are two-credit courses.

2. an introductory course in Philosophy or the equivalent; two of Philosophy 32.205, 32.215, 32.225, 32.270, 32.305, 32.380; either Philosophy 32.211★ and 32.212★ or 32.240 or 32.330; Philosophy 32.290; a full course or the equivalent at the 400 level; and, if the degree sought is Bachelor of Arts, another 400 level philosophy course.

3. a language credit other than English (preferably French) (acceptable First-year level French courses are French 20.102 and 20.108);

4. an approved credit in Canadian history. (Students who plan to practise journalism in another country may be advised to choose a different history course.);

5. approved options to make up a program total of twenty-one credits.

Combined Honours, Journalism and Sociology

Course requirements are:

1. Journalism 28.100, 28.101★, 28.200, 28.220, 28.320, 28.321★, 28.351★, 28.421, and, if the Honours degree sought is the Bachelor of Journalism, Journalism 28.498;

Note:

Journalism 28.220 and 28.320 are two-credit courses.

2. Sociology 53.100 or Anthropology 54.100 or Sociology-Anthropology 56.100; Sociology-Anthropology 56.200★; either Sociology 53.201★ or Anthropology 54.201★; Sociology 53.370; Sociology-Anthropology 56.305 or Sociology 53.306 (if the Honours

Essay is written in sociology, Sociology 53.306 is recommended); if the Honours Essay is written in sociology, Sociology 53.495 or 53.498 and two additional credits in Sociology, excluding Sociology-Anthropology 56.211, one of which must be taken at the 400 or 500 level, but, if the Honours Essay is written in journalism, three additional credits in sociology, one of which must be taken at the 400 or 500 level;

3. a language credit other than English (preferably French) (acceptable First-year level French courses are French 20.102 and 20.108);

4. an approved credit in Canadian history. (Students who expect to practise journalism in another country may be advised to choose a different history course.);

5. approved options to make up a program total of twenty-one credits.

B.J. Honours with a Concentration in Psychology

Course requirements are:

1. Journalism 28.100, 28.101★, 28.200, 28.220, 28.320, 28.321★, 28.351★, 28.421, 28.498;

Note:

Journalism 28.220 and 28.320 are two-credit courses.

2. Psychology 49.100, 49.200★, 49.205★; two of 49.210★, 49.220★, 49.250★, 49.260★, 49.270★, 49.300★; four half-courses (two credits) in psychology chosen in consultation with members of the department from psychology courses in the area of education, biopsychology, mental health, community social processes, perception, and social policy; and one optional credit in psychology;

3. a language credit other than English (preferably French) (acceptable First-year level French courses are French 20.102 and 20.108);

4. an approved credit in Canadian history. (Students who expect to practise journalism in another country may be advised to choose a different history course.);

5. approved options to make up a program total of twenty-one credits.

Note:

The foregoing course pattern does not constitute a Combined Honours program in Journalism and Psychology.

Admission, Continuation and Graduation in Four-Year Program

Admission and Continuation

For admission to the First year, students are required to present either:

1. Completion of Qualifying University year with a grade-point average of 4.0 or better; or

2. The Ontario Secondary School Honour Graduation Diploma with a *minimum* 65% average and including a language other than English (French is recommended).

It should be noted that the number of student spaces in the school is limited. Because of this it may not be possible to grant admission to all applicants who meet the foregoing requirements. Admission will therefore be on a selective basis with preference given to those candidates who show the highest promise of success in the course.

Admission to Second year will be guaranteed only to First-year journalism students who achieve a minimum B- in Journalism 28.100 and who maintain a 7.0 overall grade-point average in First year (calculated on five credits, including failures).

Students may normally be permitted to transfer into Second-year journalism provided they have a minimum B- average in their First year and provided they make up First-year journalism requirements: Journalism 28.100, 28.101★ and a language, preferably French. (Acceptable First-year French courses are French 20.102 and 20.108.)

Students may not continue into 300-level or higher courses without satisfactory standing. Admission to these courses will be based on a minimum of: (a) C standing in Journalism 28.220; (b) an average of C+ in the three journalism subjects taken for credit in the first two years: Journalism 28.100, 28.200 and 28.220; (c) an overall grade-point average of 4.0; (d) completion of Journalism 28.101★.

Note:

Journalism students must become reasonably proficient on the typewriter as soon as possible. All assignments in the professional journalism courses are done by typewriter.

Graduation Requirements

In addition to the graduation requirements of the Faculty of Arts, a candidate for the degree of Bachelor of Journalism with Honours must have a C+ average in the Journalism courses, with C grades or better in the reporting courses, a minimum C- in each other journalism course, and be recommended for graduation by the school.

If after the regular examinations in any year a student is below the standard, grades must be raised in the appropriate subjects by writing grade-raising examinations.

One-Year Program

The holder of a Bachelor's or Master's degree in Arts or any field may be permitted to enrol in the one-year program and, if his or her background has reached the required standard, may qualify for the degree of Bachelor of Journalism with Honours in one academic year of five and a half credits. If the background is insufficient, one or more additional credits may be required for the degree.

Applicants for this program must contact the School of Journalism directly, before June 1, for application materials. The deadline for receipt of completed applications and supporting material is June 15.

The one-year program will normally consist of the following:

1. Journalism 28.321★ (Career Seminars)
2. Journalism 28.434★ (Media and Society I) and Journalism 28.435★ (Media and Society II)
3. Journalism 28.461★ (Perspectives on Modern Society) and Journalism 28.462★ (Public Issues in Canada)
4. Journalism 28.440★ (Media Practices) and Journalism 28.451★ (Basic Journalism Law)
5. Journalism 28.441★ (Reporting Laboratory I) and Journalism 28.442★ (Reporting Laboratory II)
6. Journalism 28.499 (Honours Research Project)

Students enrolling in the one-year program as the Qualifying year of the Master's program in the communications stream are required to take five credits including a seminar in communications research, described in the course list under Mass Communication 27.201, and omitting Journalism 28.321★, 28.451★ and 28.499. Students proceeding to their Master's degree in the specialized reporting stream are required to take five credits including a seminar in interpretative reporting, described in the course list under Journalism 28.444★, and omitting Mass Communication 27.201 and Journalism 28.499. Arrangements will be made for apprenticeship assignments to supplement such practical experience as graduate students may already possess. Please note the foregoing reference to proficiency in typewriting, and the paragraph relating to academic standing and grades. A student must obtain a minimum overall average of C+, a minimum C grade in the reporting courses and a minimum C- in each other journalism course.

Classes of Honours

The grade-point system by which standing is expressed is outlined on p. 45.

The class of Honours degree for the one-year program students will be calculated as follows:

1. The Honours average is normally calculated on the basis of a weighting system which provides a weight of two for Journalism 28.441★ and 28.442★, one for each pair of half-courses listed in the program and one for 28.499, that is, the marks for these courses are multiplied by the appropriate weight and the total divided by seven.
2. Students admitted to the one-year program will be notified of the value that has been applied to their overall previous academic work and this value will be included in the calculation of the overall average as if it represented the first three years of university work at Carleton.

Courses Offered

Journalism 28.100**Introduction to Journalism Studies**

An introduction to the semantic, linguistic and philosophical contexts and materials of journalism, followed by an outline of the historical development of journalism in Europe, the United States and Canada. Discussion groups are workshops for research writings, and study of a series of readings.

Prerequisite: For journalism Honours students only. Day division: Lectures and discussion groups three hours a week.

Journalism 28.101★**Journalism Workshop**

A course designed to provide journalism students with fundamental skills in typing and note-taking. Students normally take Forkner shorthand during one term and typing during the other, unless they are already qualified in one or both skills. The qualification standard is sixty words per minute for shorthand or speed writing and twenty-five words per minute in typing. The course is marked on a pass/fail basis; students are passed as soon as they have demonstrated proficiency in both skills. Students are not permitted to withdraw from this course except with approval of the school, and must have passed the course before entering Journalism 28.320. There are no formal supplemental examinations in this course.

Prerequisite: For journalism Honours students only. Day and Evening divisions: Workshops four hours a week.

Journalism 28.200**Problems of the Mass Media**

An historical and contemporary examination of mass media problems including ownership structure, monopoly, government control, freedom and secrecy, responsibility and ethics, public opinion, propaganda, copyright, censorship in war and peace.

Prerequisite: Journalism 28.100 or Mass Communication 27.111.

Day division: Three hours a week.

Journalism 28.215**The Documentary**

This course examines the work of individual film makers, of documentary styles, and of organizations and institutions in the context of the history of documentary film making. Non-fiction films other than documentaries may be considered. (Also listed as Film Studies 19.215.)

Prerequisite: Film Studies 19.100, or permission of the school.

Day division: Lecture and screening three hours, lecture one hour.

Journalism 28.220 (2 credits)**Fundamentals of Reporting**

The collection and presentation of news, for print, radio and television media. This is mainly a practical course, based on workshop and newsroom assignments. Prerequisites: For Second-year Honours journalism students and transfer students.

Day division: Lectures and workshops seven hours a week, plus newsroom assignments averaging twenty hours per term.

Journalism 28.300**The Modern Environment**

A seminar course for journalism students in which a number of texts drawn from the social sciences, literature, journalism and philosophy are considered for their contributions to an understanding of contemporary society and the issues which provide the background to much of contemporary journalism.

Prerequisites: Journalism 28.100 or Mass Communication 27.111 and Journalism 28.200, or permission of the school.

Day division: Three hours a week.

Journalism 28.305★**International Media Systems**

This course is concerned with the flow of world news — how it is collected, transmitted, received, selected, edited and distributed; how it informs or inhibits our views of the world around us. It examines the relationship and dependence of Canadian media on regional and international institutions and systems. It examines such items as media systems; the role of international news agencies; the role of global telecommunication systems; the foreign news-gathering operations of national radio and television networks, and the inter-network arrangements for news distribution; the role of supranational media institutions such as UNESCO, the International Press Institute, the Inter-American Press Association and the International Organization of Journalists; the role of regional distribution agencies such as Intervision, Eurovision, European Broadcasting Union, Asian Broadcasting Union.

Prerequisite: One of Journalism 28.100, 28.200, Mass Communication 27.111, 27.211 or permission of the school.

Journalism 28.306★**Comparative Media Studies**

This course is concerned with comparisons of media content. Comparisons may be cross-cultural in nature (i.e. comparisons of English- and French-Canadian television news), cross-media (i.e. comparisons of radio and print coverage of the same event), cross-national (i.e. comparisons of daily newspaper coverage of the same events in various English-speaking countries), or a mixture of these. There may also be comparisons over time. Some time is spent examining critically and employing research tools and methods used in such studies.

Prerequisite: One of Journalism 28.100, 28.200, Mass Communication 27.111, 27.211 or permission of the school.

Journalism 28.320 (2 credits)

Advanced Reporting and Editing

The course covers advanced work in TV, radio and print media. Under staff supervision, students report and edit for a community newspaper, report and produce for radio news and television news, and engage in depth reporting.

Prerequisite: Journalism 28.101★ and Journalism 28.220.

Day division: Day-long workshops once a week, plus approximately thirty hours of newsroom work per term.

Journalism 28.321★

Career Seminars

An opportunity for the student to specialize by doing work in such areas as television, radio, magazines, public relations, creative writing, editorial writing, freelancing, the film, or reporting in the French language. Certain of these specialties may not be offered in a given year.

Prerequisite: For Third-year and one-year B.J. students only.

Day division: Annually, as required; two hours alternate weeks all year.

Journalism 28.333

Film and Society

An examination of film in relation to social and intellectual developments of the twentieth century. The ways in which the cinema has both shaped and been shaped by some of these developments are considered. (Also listed as Film Studies 19.333.)

Prerequisite: For Third- and Fourth-year students, or permission of the school.

Day division: Lecture and screening three hours, lecture one hour a week.

Journalism 28.345

The Journalist in the Twentieth Century

An examination of how Western journalists have covered a number of major events in the twentieth century together with a brief comparison of their coverage with subsequent interpretations in order to gain a better understanding of the contributions and limitations of modern journalism.

Prerequisite: Permission of the school.

Not offered 1982-83.

Journalism 28.351★

Communications Law I

This course is concerned with the general laws governing the mass media in Canada with attention to their effect on freedom of expression. Specific topics for examination include: contempt of court; free press, fair trial; revealing of sources; civil defamation; criminal libel; obscenity and censorship; copyright; privacy; government secrecy; the law of advertising. (Also listed as Law 51.351★.)

Prerequisite: Permission of the school.

Day division, First term: Lectures and discussions three hours a week.

Journalism 28.352★

Communications Law II

The law as it affects the Canadian broadcasting and communications industry. The primary focus of the course is on the operations of the Canadian Radio-Television and Telecommunications Commission. Specific topics for examination may include: administrative formulation of policy; multiple, monopoly and foreign ownership; control of program content (violence, obscenity, "good taste", food and drug commercials, liquor advertising, indirect censorship); controlling program quality; the provision of a right of access to the media; cablevision licensing and control; alternative sanctions. (Also listed as Law 51.352★.)

Prerequisite: Permission of the school.

Day division, Second term: Lectures and discussion three hours a week.

Journalism 28.400

Basic Issues

A seminar on leading news topics of the day. Stress is placed upon intensive investigation and consideration of perennial problems as well as emerging public issues likely to confront the professional journalist.

Prerequisite: Journalism 28.300.

Not offered 1982-83.

Journalism 28.421

Specialized Reporting

An opportunity for students to specialize by acquiring background and undertaking assignments in all media in various specialized areas, such as science and technology, business and finance, sports, the arts, international affairs, Canadian politics and government, social welfare. Certain of these specialties may not be offered in a given year.

Prerequisite: Journalism 28.320.

Day division: Three hours a week.

Journalism 28.434★

Media and Society I

An analysis of communications theory and the development of communications media as influential institutions in western society, with special attention to landmark events in Canada, Britain and the United States. An emphasis is placed upon current social science research studies as they relate to journalism and communication.

Prerequisite: For students in the one-year program.

Journalism 28.435★

Media and Society II

An examination of the role and structure of the news media in Canada with special attention to problems of ownership, monopoly, government control, content, censorship and social and political responsibility.

Prerequisite: For students in the one-year program.

Journalism 28.440★

Media Practices

Combined seminars and workshops in news judgment and its application; principles of newsroom structure,

organization and operations as applied throughout Canada; copy editing, headwriting and make-up; analysis of role of various editors; links between media and public.

Prerequisite: For students in the one-year program.

Journalism 28.441★

Reporting Laboratory I

A laboratory course in basic reporting in various media.

Prerequisite: For students in the one-year program.

Journalism 28.442★

Reporting Laboratory II

A laboratory course in advanced reporting in various media.

Prerequisite: For students in the one-year program.

Journalism 28.444★

Interpretative Reporting

An examination of research and writing techniques used in feature and background reporting. Students research to professional standards the material needed for a series of articles on a subject of their own choosing, normally related to public affairs in the Ottawa area. While the emphasis is on a print series students may, with permission, work in other media.

Prerequisite: For students in the one-year program. Not offered 1982-83.

Journalism 28.451★

Basic Journalism Law

The purpose of this course is to prepare journalists to function comfortably within the legal guidelines governing their occupation. The course also aims to help them avoid the large errors in reporting legal matters. Topics studied and discussed include: the difference between civil and criminal law; contempt of court; free press, fair trial; revealing of sources; civil defamation; criminal libel; obscenity; copyright; privacy; government secrecy; advertising law.

Prerequisite: For students in the one-year program.

Journalism 28.461★

Perspectives on Modern Society

A seminar course examining texts from the social sciences, philosophy, literature and journalism for the contribution they make to an understanding of issues facing modern industrial society.

Prerequisite: For students in the one-year program.

Journalism 28.462★

Public Issues in Canada

A seminar course examining literature and other sources in an attempt to understand continuing and emerging political, social and economic problems in contemporary Canada.

Prerequisite: For students in the one-year program.

Journalism 28.490

Honours Tutorial

Students are asked to analyze some of the major achievements in contemporary journalism. They work individually and in groups in presenting research papers. Students are also given the opportunity to acquire background and experience in the managerial aspects and production of print and broadcast journalism.

Prerequisite: Journalism 28.320.

Journalism 28.498

Honours Research

Students in this course have to carry out directed research and prepare a project under the supervision of one faculty member. The deadline for completion of the Honours research project is April 1.

Prerequisite: For B.J. Honours students only.* Day division.

Journalism 28.499

Research Credit

Students carry out directed research and prepare a project under the supervision of one faculty member. The deadline for completion of the Honours research project is April 1.

Prerequisite: For students in the one-year program.* Day division.

*Students should refer to general Faculty of Arts regulations regarding submission of Honours Essays (p. 97).

Department of Law

Officers of Instruction

Chairman

R.L. Campbell

Supervisor of Honours Studies

D. Wayand

Supervisor of Majors Studies

R.P. Saunders

Professors

R.D. Abbott (*Public Administration*)

P.J. Fitzgerald

D. Fraser

J. George Neuspiel

Associate Professors

J. Barnes

R.L. Campbell

D.W. Elliott

J.A. MacKenzie

K.G. McShane

M.H. Ogilvie

D. Wayand

Assistant Professors

P.J. Davidson

M.H. Davies

N. Jensen

M. Mac Neil

C.N. Sargent

R.P. Saunders

Adjunct Professors

M. Cohen

D. Pharand

Sessional Lecturers

C. Aitken

M. Berlin

D. Cameron

M. Cochrane

R. Cross

R.G. Dearden

R.L. Doering

J. Emond

E. Gilhooly

D. Good

L. Greenspon

G. Grenville-Wood

C. Hackland

J. Harbic

D. Heeley

H.A. Keenleyside

E. Keyserlingk

C.T. MacNab

P.T. McEnery

R. Morrow

R.G. Mosley

H. Puccini

J.M. Reid

S. Ritchie

G. Robichon

L.A. Roine

C. Rotenberg

M. Sullivan

R. Wilson

General Information

Courses and programs in this department are intended to promote an awareness of the place of rules respecting human conduct in the political, social and economic environment. Many law courses were originally established to meet the need of students in other programs for a knowledge of the legal aspects of their own disciplines. It is a continuing desire of the department that students bring to bear on legal problems the insights of other disciplines and it is the department's hope that students will benefit from a knowledge of the techniques of legal analysis and of legal principles. Successful completion of courses or programs in the department *does not* qualify anyone to practise law or give counsel on legal matters.

Students intending to proceed to a law school should note that at present no credit is given towards a law degree for law courses taken at Carleton. However, prospective law students may find Carleton law courses valuable introductions to professional studies. Members of the department are available to advise prospective law students as to their choice of law school and the selection of courses at this University.

The Department of Law offers programs leading to both Major and Honours degrees in law. Students may also undertake the study of law in a combined Major or Honours program in conjunction with another discipline.

Introduction

In the following program descriptions, the term "course" means full credit course.

Major Program

The Major program is governed by the following regulations:

1. All Major programs must be approved by the department after consultation with the Supervisor of Majors or some other member of the department specifically designated for that purpose.

2. A Major in law requires a minimum of six but normally not more than nine full law courses or their equivalent according to the following prescribed pattern:

- (a) Law 51.100, or the combination of 51.101★ with 51.102★; and
- (b) Law 51.200; and
- (c) at least one full law course at the 300 or 400 level;
- (d) at least three additional courses chosen from among the following five areas with at least one course from each of three different areas:
 - (i) Theory of Law: 51.210, 51.311★, 51.312★, 51.353, 51.355★;
 - (ii) Comparative Law: 51.322, 51.463, 51.486★, 51.487★, 51.488;
 - (iii) Law and the Economy: 51.220, 51.320, 51.321, 51.323, 51.324, 51.325★, 51.326★, 51.420★, 51.421★, 51.441;
 - (iv) Law and Government: 51.205, 51.351★, 51.352★, 51.374, 51.380, 51.441, 51.445★, 51.450, 51.456★, 51.457★, 51.463; and
 - (v) Law and Society: 51.234, 51.284, 51.301★, 51.325★, 51.326★, 51.333, 51.348★, 51.354★.

3. Students must either:

- (a) have taken Law 51.100 or its equivalent and obtained a grade of C- or better at the time of declaring a law Major; or
- (b) include Law 51.100 or its equivalent in their program immediately after declaring a Law Major and obtain a grade of C- or better in it.

4. In addition to the law courses, Major students must normally take at least three approved courses in one other discipline.

5. Students in the Major program must satisfy the general University regulations for Majors programs.

Note:

The attention of Major students is drawn to the requirement that any change in their program must be expressly approved by the departmental Supervisor of Majors and that this approval must not be presumed. Failure to heed the departmental supervisor's advice may result in the student's ineligibility for certain advanced and graduate courses and programs or ineligibility to graduate.

Combined Major Program

The Combined Major program is governed by the following regulations:

1. All Combined Major programs must be approved by the department after consultation with the Supervisor of Majors or some other member of the department specifically designated for that purpose.
2. Combined Major students will complete at least five, but normally not more than seven full law courses or their equivalent according to the following prescribed pattern:

- (a) Law 51.100, or the combination of 51.101★ with 51.102★; and
- (b) Law 51.200; and
- (c) one law course at the 300 level or higher; and
- (d) at least two further law courses or their equivalent, but not including Law 51.201.

3. Students whose other discipline in a Combined Major program is not in the Faculty of Social Sciences must take at least one introductory or survey course in a social science as may be approved by the department.

4. Combined Major students must obtain a grade of C- or better in Law 51.100, or in the combination of its prescribed equivalent.

5. Students in the Combined Major program must satisfy the general University regulations governing B.A. Major programs.

6. All transitional arrangements governing entry into a Combined Major program in previous issues of the calendar are revoked.

Note:

The attention of Combined Major students is drawn to the requirement that any change in their program must be expressly approved by the departmental Supervisor of Majors and that this approval must not be presumed. Failure to heed the departmental Supervisor's advice may result in the student's ineligibility for certain advanced and graduate courses and programs or ineligibility to graduate.

Honours Program

The Honours program is governed by the following regulations:

1. All Honours programs must be approved by the department after consultation with the Supervisor of Honours or some other member of the department specifically designated for that purpose.
2. An Honours student must complete a minimum of twenty-five courses from Junior Matriculation or a minimum of twenty courses from Senior Matriculation including at least eight and normally not more than twelve full law courses or their equivalent according to the following prescribed pattern:
 - (a) Law 51.100, or the combination of 51.101★ and 51.102★; and
 - (b) Law 51.200; and
 - (c) at least five courses chosen from among the following five areas with at least one course from each of three different areas and at least two courses at the 400 level or higher:
 - (i) Theory of Law: 51.210, 51.311★, 51.312★, 51.353, 51.355★, 51.510F;
 - (ii) Comparative Law: 51.322, 51.463, 51.486★, 51.487★, 51.488, 51.521W1;

(iii) Law and the Economy: 51.220, 51.320, 51.321, 51.323, 51.324, 51.325★, 51.326★, 51.420★, 51.421★, 51.441;

(iv) Law and Government: 51.205, 51.351★, 51.352★, 51.374, 51.380, 51.441, 51.445★, 51.450, 51.456★, 51.457★, 51.463, 51.553W1, 51.556W1, 51.567W1; and

(v) Law and Society: 51.234, 51.284, 51.301★, 51.325★, 51.326★, 51.333, 51.348★, 51.354★.

(d) an Honours essay in Law (51.498).

3. Honours students must:

(a) either have taken Law 51.100 or its equivalent at the time of entering the Honours program; or

(b) include Law 51.100 or its equivalent in their program immediately after entering the Honours program; and

(c) must normally obtain a grade of C+ or better in Law 51.100 or its equivalent.

4. Students in the Honours program must have obtained a grade of B- or better in their Honours Essay in Law (51.498).

5. In addition to the law courses, Honours students must normally take at least three approved courses in one other discipline.

6. Students in Honours program must satisfy the general University regulations for B.A. Honours programs.

Note:

Attention of Honours students is drawn to the requirement that any change in their program must be expressly approved by the departmental Supervisor of Honours and that this approval must not be presumed. Failure to heed the departmental Supervisor's advice may result in the student's ineligibility for certain advanced and graduate courses and programs or ineligibility to graduate.

Combined Honours Program

The Combined Honours program is governed by the following regulations:

1. All Combined Honours programs must be approved by the department after consultation with the Supervisor of Honours or some other member of the department specifically designated for that purpose.

2. Combined Honours students must complete a minimum of twenty-five courses from Junior Matriculation or a minimum of twenty courses from Senior Matriculation.

3. Combined Honours students will complete at least six but normally not more than nine full law courses, or their equivalent according to the following prescribed pattern:

(a) Law 51.100, or the combination of 51.101★ with 51.102★; and

(b) Law 51.200; and

(c) at least one law course at the 300 level or higher; and

(d) at least one other law course at the 400 level; and
(e) an Honours Essay in Law (51.498), or a designated equivalent, or an Honours Essay in the other discipline, (when the Honours Essay is in the other discipline students are required to take Law 51.490, Directed Studies in Law); and

(f) at least one other law course which may not include Law 51.201.

4. Students whose other discipline in a Combined Honours program is not in the Faculty of Social Sciences must take at least one introductory or survey course in a social science as may be approved by the department.

5. Combined Honours students must normally obtain a grade of C+ or better in Law 51.100, or in the combination of its prescribed equivalent.

6. Students in a Combined Honours program must have obtained a grade of B- or better in their Honours Essay in Law (51.498), or in the designated equivalent. Similarly a grade of B- or better is required in Directed Studies in Law 51.490, whenever this course is offered in substitution of the Honours Essay in Law, in accordance with the provisions of regulation 3(e) above.

7. Students in a Combined Honours program must satisfy the general University regulations for B.A. Honours programs.

8. Where the Combined Honours program is with the School of Journalism, and the Honours Essay is done in Journalism, the degree awarded will be the Honours Bachelor of Journalism with Law. Students are directed to the regulations of the School of Journalism which includes a requirement of twenty-one courses in four years.

Note:

The attention of Combined Honours students is drawn to the requirement that any change in their program must be expressly approved by the departmental Supervisor of Honours and that this approval must not be presumed. Failure to heed the departmental supervisor's advice may result in the students' ineligibility for certain advanced and graduate courses and programs or ineligibility to graduate.

Criminology and Corrections Concentration

For details see p. 129.

Off-Campus Courses

Introductory law courses may be offered off-campus by the Department of Law. The particular course(s) offered and location(s) will be announced well in advance of the period of registration.

Prerequisites

The attention of students is drawn to the fact that many law courses have designated prerequisites. In some instances "permission of the department" is an alternative to the specified prerequisite. It must not be presumed that such permission will be granted automatically; and it may be granted subject to certain conditions, including the fulfillment of preliminary reading requirements or the submission of some written work.

Some Possible Law Course Sequences In Various Areas of Interest

Theory of Law: 51.100, 51.200, 51.201, 51.210, 51.311★, 51.312★, 51.353, 51.355★.

Comparative Law: 51.100, 51.201, 51.322, 51.463, 51.486★, 51.487★, 51.488, 51.521W1, 51.563F1, 51.567W1.

Law and the Economy: 51.100, 51.220, 51.320, 51.321, 51.322, 51.323, 51.324, 51.325★, 51.326★, 51.420★, 51.421★, 51.441.

Law and Government: 51.100, 51.205, 51.351★, 51.352★, 51.353, 51.354★, 51.374, 51.380, 51.441, 51.445★, 51.450, 51.456★, 51.457★, 51.463, 51.553W1, 51.556W1, 51.567W1.

Law and Society: 51.100, 51.200, 51.201, 51.234, 51.284, 51.301★, 51.325★, 51.326★, 51.333, 51.348★, 51.353, 51.354★, 51.355★.

The foregoing suggestions are not intended to limit Major Combined Major, Honours or Combined Honours students in their selection of courses in accordance with individual wishes. Students planning to take either a Major, Combined Major, Honours or Combined Honours program in law should carefully read the relevant department, faculty and University regulations, and should not select any courses other than Law 51.100 and 51.200 without consulting the department's Adviser for Majors or Honours.

Courses Offered

Note:

A star (★) following a course number indicates a half credit course.

51.100**Introduction to Legal Studies**

An historical introduction to the study of law and to the legal system; the background to the British and Canadian constitutions, general concepts of constitutional and administrative law; the development of public and private law from the Anglo-Saxon period to the present; the legal institutions of Canada and the place

of law and of the courts in the community; legal interpretation and the use of legal precedents.

Day and Evening divisions: Lectures three hours a week, group workshops one hour a week.

R. Cross, M.H. Davies, R.L. Doering, K.G. McShane, J.G. Neuspiel, M.H. Ogilvie

Note:

Law 51.100 and the combination of Law 51.101★ with 51.102★ are completely identical in content and only one of them may be taken for credit.

Law 51.101★**Historical Introduction to Legal Studies**

An historical introduction to the study of law and to the legal system; the background of the British and Canadian constitutions, general concepts of constitutional and administrative law. Development of public and private law from the Anglo-Saxon period to the present; the rule of law.

Day and Evening divisions, First term: Lectures three hours a week, group workshops one hour a week.

R. Cross, M.H. Davies, R.L. Doering, K.G. McShane, M.H. Ogilvie

Note:

Law 51.100 and the combination of Law 51.101★ with 51.102★ are completely identical in content and only one of them may be taken for credit.

Law 51.102★**Introduction to the Canadian Legal System**

The Canadian legal system with emphasis on the organization and jurisdiction of the courts. A study of the doctrine of precedent with case studies drawn from law of torts. Legal interpretation of statutes. Canadian criminal process and civil procedures. Public law and problem of subordinate legislation. The place of law and of the courts in the community.

Prerequisite: Law 51.101★.

Day and Evening divisions, Second term: Lectures three hours a week, group workshops one hour a week.

R. Cross, M.H. Davies, R.L. Doering, K.G. McShane, J.G. Neuspiel

Note:

Law 51.100 and the combination of Law 51.101★ with 51.102★ are completely identical in content and only one of them may be taken for credit.

Law 51.200**The Legal Process**

A methodological study of the legal process in general, with particular reference to its operation in the Canadian legal system; the nature of legal rules, principles, standards and concepts; the advantages and disadvantages of the legal process in comparison with other processes for the solution of conflicts. This course is designed for students who intend to select law as their Major or Honours subject or as one of their Combined Major or Honours subjects.

Prerequisite: Law 51.100 (or its equivalent) or permission of the department.

Day and Evening divisions: Seminars three hours a week.

J. Barnes, L. Greenspon, G. Grenville-Wood, R.P. Saunders, M. Sullivan

Note:

Only one of Law 51.200 or 51.201 may be taken for credit.

Law 51.201

The Elements of Law

A topical survey of the Canadian legal system including its concepts, institutions, processes and functions. As this course is particularly designed for teachers of law in high schools, the methodological problems are emphasized.

Note:

Law 51.201 may not be taken for credit towards a Major, Honours, Combined Major or Honours degree in law.

Prerequisite: Permission of the department.

Law 51.205

Introduction to Public Law

A basic study, with special reference to Canadian institutions, of the law governing the relationships between the state and the individual, and the workings of the different organs of the state. Constitutions, the role of the judiciary in constitution-making, division of legislative powers. Introduction to the principles of administrative law. Legislation for protection of general and minority rights. Role of courts and related institutions in selected public law fields.

Prerequisite: An introductory course in political science or Law 51.100 (or its equivalent) or permission of the department.

Day and Evening divisions: Lectures and discussions three hours a week.

D.W. Elliot, G. Robichon

Law 51.210

Theory of Law and Politics

A study of the interrelated theories of law and politics, as they were treated by prominent thinkers and by important schools of thought, and as they manifested themselves in various legal and political institutions throughout history. Topics of investigation include: law and ethics; justice and equity; positivism and natural law; state absolutism and positive law; the political background of past codifications, as well as anthropological and historical theories of law and society. (Students interested in the sociological aspects of this topic are referred to Sociology-Anthropology 56.286★.) Prerequisite: Law 51.100 (or its equivalent) or Political Science 47.100 or permission of the department.

Day or Evening divisions: Lectures and discussions three hours a week.

D. Wayand

Law 51.220

Commercial Law I

An examination of the principles of contract including formation, enforceability, capacity, privity, discharge and remedies for breach; the formation of the contract of sale, the duties and remedies of both parties under the Ontario Sale of Goods Act; the application of the Personal Property Security Act; special contracts including those of tenancy and bailment; proposals for reforms.

Day and Evening divisions: Lectures three hours a week, group workshop one hour a week.

G. Bloom, P.J. Davidson, N. Jensen, J. MacKenzie, M. Mac Neil, P.T. McEnery, M.H. Ogilvie

Law 51.234

Law and Antisocial Behaviour

Canadian criminal process; the nature and purpose of criminal law; the criminal act as distinguished from civil wrong; the origin and development of contemporary principles and procedures, the various categories of criminal conduct. The role of enforcement agencies and of the courts in the administration of criminal law. Methods of criminal correction. Introduction to the study of the relationship between criminal activity and deviant behaviour.

Prerequisite: One of Law 51.100 (or its equivalent) or 51.200, 51.201, 51.205 or permission of the department. Day and Evening divisions: Lectures and discussions three hours a week.

M. Berlin, E. Gilhooly, J. Harbic, D. Heeley, R.G. Mosley, R.P. Saunders

Law 51.284

Law of the Family

Law and the family as a unit, engagement, marriage and dissolution of marriage, rights and duties of spouses and parents. The law and the child: care, custody, access, guardianship, adoption, illegitimacy. The role of courts and of social welfare agencies.

Prerequisite: One of Law 51.100 (or its equivalent) or 51.200, 51.201, 51.205 or permission of the department. Day and Evening divisions: Lectures and discussions three hours a week.

C. Aitken, R. Morrow, J.M. Reid

Law 51.301★

Women and the Legal Process

This course examines the manner in which the legal process has affected the status of women. Areas of concentration within the Canadian context include the criminal law, citizenship and immigration, education, employment, and welfare and social services.

Prerequisite: One of Law 51.100 (or its equivalent) or 51.200, 51.201 or permission of the department.

Day or Evening division, Second term: Lectures and discussions three hours a week.

H. Puccini

Law 51.311★

The Nature of Law

This course examines the concept of law, leading theories of law and related concepts such as rules and obligations, power and authority, coercion, and justice. (Also listed as Philosophy 32.311★. Students interested in the sociological aspects of this topic are also referred to Sociology-Anthropology 56.286★.)

Prerequisite: One of Law 51.100 (or its equivalent) or Law 51.210, or permission of the department.

Day division, First term: Lectures and discussions three hours a week.

Note:

Students who have obtained credit for Law 51.310 (Philosophy 32.350) cannot also obtain credit for Law 51.311★ (Philosophy 32.311★).

Law 51.312★

The Logic of the Law

This course examines the nature of legal reasoning and analyses concepts particularly used in the course of legal reasoning such as rights and duties, ownership and possession, liability and punishment. (Also listed as Philosophy 32.312★. Students interested in the sociological aspects of this topic are also referred to Sociology-Anthropology 56.286★.)

Prerequisite: One of Law 51.100 (or its equivalent) or Law 51.210, or permission of the department.

Day division, Second term: Lectures and discussions three hours a week.

R. Marlin

Note:

Students who have obtained credit for Law 51.310 (Philosophy 32.350) cannot also obtain credit for Law 51.312★ (Philosophy 32.312★).

Law 51.320

Commercial Law II

This course deals with the principles of agency, the contract of employment, and the law of landlord and tenant. These areas are examined with particular emphasis on the rights and duties of parties to the relationship, and the rights of persons dealing with parties and the termination of the relationship. Both commercial and residential tenancies are examined in the law of landlord and tenant.

Prerequisite: Law 51.220 or permission of the department.

Day and Evening divisions: Lectures and discussions three hours a week.

R. Dearden, S. Ritchie

Law 51.321

Company Law

The law relating to corporations and partnerships in Canada; the historical development of the corporate device; rights and duties of officers, directors and shareholders of the corporation; legal aspects of corporate finance; comparative aspects of corporation law in the United Kingdom, the United States and Europe.

Prerequisite: Law 51.220 or permission of the department.

Day or Evening division: Lectures and discussions three hours a week.

R.L. Campbell

Law 51.322

International Economic Law I

A general introduction to the legal aspects of foreign trade transactions. Standardized export and import trade terms. Forms, incidents and documentation of various types of foreign trade contracts. Conflict avoidance, arbitration and litigation arising from international transactions. Governmental regulation of foreign trade. Legal aspects of the international transfer of investments and technology. Conventions and institutions of international economic co-operation (e.g. GATT, ICC, IMF, etc.).

Prerequisite: Law 51.220 or permission of the department.

Day or Evening division: Lectures and discussions three hours a week.

P.J. Davidson

Law 51.323

The Legal Nature of Property

The nature and history, creation and termination of interests in different types of property, with particular reference to the law of real property. Topics include the different types of ownership, creation and effect of third-party rights in land, disposition of property on death, conveyancing and restrictions over the use of land.

Prerequisite: One of Law 51.100 (or its equivalent) or 51.200 or permission of the department.

Day or Evening division: Lectures and discussions three hours a week.

M. Cochrane

Law 51.324

Tax Law and Policy

An introduction to federal income taxation, both personal and corporate, and a review of the Canadian tax system generally with some reference to the development, implementation and enforcement of tax policy.

Prerequisite: Law 51.220 or permission of the department.

Day and Evening divisions: Lectures and discussions three hours a week.

J.A. MacKenzie, C.T. MacNab, C. Rotenberg, R. Wilson

Law 51.325★

Consumer Law

This course examines the need for consumer protection in the provision of goods and services, and investigates the traditional legal protection afforded by statute and common law, the legislative response to consumer pressures and the judicial response in recent Canadian, English and American law. In addition, reform of consumer law is considered.

Prerequisite: Law 51.220 or permission of the department.

Day division, First term: Lectures and discussions three hours a week.

M.H. Ogilvie

Note:

Students who have obtained credit for Law 51.325 (Consumer Law) cannot also obtain credit for Law 51.325★ (Consumer Law).

Law 51.326★

Banking Law and Negotiable Instruments

This course examines the law relating to banks, banking and negotiable instruments. Particular emphasis is placed on the nature of the legal relationship created and on the legal rights and duties of the parties involved. Areas studied include the consumer and commercial aspects of banking (including computerization) and bills of exchange, cheques and promissory notes as well as credit cards.

Prerequisite: Law 51.220 or permission of the department.

Day division, Second term: Lectures and discussions three hours a week.

M.H. Ogilvie

Law 51.333

Torts

The protection of personal interests in physical and proprietary security from interference. The manner in which the legislatures and the courts develop and broaden the law to meet the needs of a changing society. Compensation and loss distribution. The principal matters studied include: intentional torts, negligence, strict liability and nuisance.

Prerequisite: Law 51.100 (or its equivalent) or 51.200 or permission of the department.

Day and Evening divisions: Lectures and discussions three hours a week.

C. Hackland, D. Wayand

Law 51.348★

Legal Aspects of Sport

This course deals with issues in the legal regulation of sporting activities in Canada. Subjects considered include the constitutional power to regulate sport, government involvement in sports administration, criminal prosecutions for sports violence, civil liability for sports injuries including actions against school boards, sex discrimination in sport, and legal, economic and commercial aspects of professional and intercollegiate leagues including players' employment contracts and disciplinary proceedings.

Prerequisites: One of Law 51.100 (or its equivalent) or 51.220 or permission of the department.

Day or Evening division, First term: Lectures and discussions three hours a week.

J. Barnes

Law 51.351★

Communications Law I

This course is concerned with the general laws governing the mass media in Canada, with attention to their effect on contempt of court, free press, fair trial, revealing of sources, civil defamation, criminal libel, obscenity and censorship, copyright, privacy, government secrecy, the law of advertising. (Also listed as Journalism 28.351★.)

Prerequisite: Permission of the department.

Day division, First term: Lectures and discussions three hours a week.

Law 51.352★

Communications Law II

The law as it affects the Canadian broadcasting and communications industry. The primary focus of the course is on the operations of the Canadian Radio-Television and Telecommunications Commission. Specific topics for examination may include: administrative formulation of policy; multiple, monopoly and foreign ownership; control of program content (violence, obscenity, 'good taste', food and drug commercials, liquor advertising, indirect censorship); controlling program quality; the provision of a right of access to the media; cablevision licensing and control; alternative sanctions. (Also listed as Journalism 28.352★.)

Prerequisite: Permission of the department.

Evening division, Second term: Lectures and discussions three hours a week.

H.A. Keenleyside

Law 51.353

Civil Liberties and Human Rights

This course examines legal conflicts which raise issues affecting basic freedoms of individuals or groups in Canadian society. The recurrent theme is the appropriate balance to strike between the rights of the individual and the rights of that collectivity of individuals called society. Specific topics examined include: the concept of liberty; law and conscience; civil disobedience; crimes without victims; civil liberties and constitutional guarantees; the Canadian Bill of Rights; racial discrimination and human rights legislation; hate literature and its control; legal problems of minority groups; poverty and law.

Prerequisite: One of Law 51.200 or 51.205 or permission of the department.

Day and Evening divisions: Seminars three hours a week.

M.H. Davies, K.G. McShane

Law 51.354★

Law and Native Peoples of Canada

A study of the legal situation of native peoples in Canada. Topics include the constitutional framework of the law, Indian status, aboriginal rights, the treaty system, the relations between special native rights and the principle of equality before the law, hunting rights, government policy and the reserve system. Comparative references to native policy in other countries are

also considered. (Students interested in the anthropological aspects of this topic are also referred to Anthropology 54.476★.)

Prerequisite: One of Law 51.205, 51.353 or permission of the department.

Day or Evening division, First term: Lectures and discussions three hours a week.

D.W. Elliott

Law 51.355★

Law Reform and the Protection of Life

A study of the relationship between law, medicine and ethics concerning questions about life and death. Topics considered include the definition of death; cessation of treatment and euthanasia; right to refuse treatment; "right to die" legislation; meaning of "person" in the medical/legal context; informed consent; human experimentation; behaviour modification; and quality of life.

Prerequisite: Law 51.100 (or its equivalent) or permission of the department.

Evening division, First term: Seminars three hours a week.

E. Keyserlingk

Law 51.374

Local Government Law

The legal framework of local and regional governments; the distribution of functions between the levels of local government and problems of the relationship between local government bodies and provincial and federal authorities; planning law and land use, regionalism and local government reform. (Also listed as Geography 45.374).

Prerequisite: One of Law 51.100 (or its equivalent) or 51.200, 51.201, 51.205 or permission of the department.

Evening division: Lectures and discussions three hours a week.

D. Cameron

Law 51.380

Law of Environmental Quality

The legal process relating to resource conservation and to the control and abatement of pollution of water, air and land. The common law and statutory remedies through private actions in the ordinary courts; the role of public authorities through coercive techniques such as criminal sanctions, licensing of resource use, licensing of pollution, and direct remedial actions; non-coercive techniques such as subsidies, tax incentives, public works, research and persuasion; land-use control techniques in protecting environmental quality; constitutional division of legislative competence concerning these matters; administrative problems of achieving interjurisdictional cooperation in activities by public authorities.

Prerequisite: One of Law 51.100 (or its equivalent) or 51.200, 51.201, 51.205 or permission of the department.

Evening division: Lectures and discussions three hours a week.

D. Good

Law 51.420★

International Economic Law II

A study of the law governing trade relations with selected global and/or regional economic organizations. Topics of study will be announced well in advance of the period of registration.

Prerequisite: Law 51.322 or permission of the department.

Day or Evening division: Second term: Seminars three hours a week.

Law 51.421★

International Economic Law III

An advanced study of the detailed rules governing economic relations with selected global and/or regional economic organizations.

Prerequisite: One of Law 51.322, 51.420★ or permission of the department.

Law 51.441

Labour Law

A study of the ordering role of law in industrial relations processes. The study considers the effect of law on the relationship among employer, employer association, employee, union, and the public. The main process considered is collective bargaining, and sub-processes studied are the recognition of the bargaining agent, bargaining for the collective agreement, and administration of the agreement. The principal ordering role of law that is considered is its attempt to resolve industrial conflict, which includes formalization of disputes in adversary modes, as well as methods of resolution. The ordering role is studied in its social as well as its legal context, by the use of non-decisional materials as well as cases.

Prerequisite: Law 51.100 (or its equivalent) or permission of the department.

Day or Evening division: Seminars three hours a week.

J. Emond, M. Mac Neil, L. Roine

Law 51.445★

Labour Relations In the Public Service

A study of the collective bargaining process in the public sector with particular emphasis on the federal, Ontario and Quebec public services. The problems of adapting accepted collective bargaining procedures and techniques to the public service environment; the right to strike in the public service and essential industries; grievance procedures; the general problem of labour-management relationships in the public sector and the consequences thereof for efficiency and loyalty.

Prerequisite: An introductory course in law or a political science course in Canadian government or Law 51.441 or permission of the department.

Evening division, Second term: Seminars three hours a week.

R. Abbott

Law 51.450

Canadian Constitutional Law

A detailed study of the basic principles of the Canadian constitution. Sovereignty, the Rule of Law, the nature and limits of executive, legislative, and judicial power in Canada as interpreted by the courts. The distribution of powers under the Canadian constitution. An investigation of contemporary legal problems of federalism.

Prerequisite: One of Law 51.100 (or its equivalent) or 51.200, 51.201, 51.205, or a political science course in Canadian government or permission of the department. Day or Evening division: Lectures and discussions three hours a week.

J. George Neuspiel

Law 51.456★

Administrative Law I

Administrative law and practice. Defining and implementing public policy, creating and structuring the administrative body, and interpreting the enabling statute. Comparisons between administrative bodies and courts of law. Procedure before administrative bodies. Comparisons between individual federal and provincial administrative bodies.

Prerequisite: One of Law 51.200, 51.205 or permission of the department.

Day or Evening division, First term: Lectures and discussions three hours a week.

D.W. Elliott

Note:

Students who have obtained credit for Law 51.455 may not also obtain credit for Law 51.456★.

Law 51.457★

Administrative Law II

Characteristics and problems of control of administrative action. Varieties of legal control, judicial review, discretion, privative provisions and damages, appellate control and statutory reform.

Prerequisite: Law 51.456★, Public Administration 50.536★ or permission of the department.

Day or Evening division, Second term: Lectures and discussions three hours a week.

D.W. Elliott

Note:

Students who have obtained credit for Law 51.455 may not also obtain credit for Law 51.457★.

Law 51.463

Public International Law

An examination of the role of law in contemporary international relations. Nature, history and sources of international law; international personality of states; the status of international organizations and individuals; creation and effect of international obligations; importance and functions of law in the settlement of international disputes.

Prerequisite: One of Law 51.100 (or its equivalent) or 51.200, 51.205 or permission of the department.

Day or Evening division: Seminars three hours a week.

J. George Neuspiel

Law 51.486★

The Civilist Tradition

A comparative study of selected topics of several major European legal systems which are based on Roman law. The development of Roman law up to and including Justinian's *corpus juris civilis*. The reception of Roman law by various European continental legal systems. Comparative analysis of selected articles of the French, Austrian and German codes.

Prerequisite: Law 51.100 (or its equivalent) and another law course or a classics course or permission of the department.

Day or Evening division, First term: Lectures and discussions three hours a week.

D. Wayand

Law 51.487★

Quebec Civil Law

A comparative examination of the legal system of Quebec. The weight and importance of the various sources of law in Quebec and how the law is made. Study of the Quebec Civil Code and of the force of the code provisions. Division of the code and influence of Roman law. Techniques of interpretation of the code. Detailed study of selected Articles of the code. Interpretation and application of the code in federal appeal courts.

Prerequisite: Law 51.100 (or its equivalent) and another law course or Law 51.486★ or permission of the department.

Day or Evening division, Second term: Lectures and discussions three hours a week.

D. Wayand

Law 51.488

Socialist Legal Systems

A comparative approach to selected legal problems of the Soviet Union and a number of other socialist states. Marxist concepts of state and law, the Leninist, Stalinist and contemporary interpretations of law and their practical applications.

Prerequisite: One of Law 51.100 (or its equivalent), 51.200, 51.205, 51.450, 51.486★, a course in East European government or in the history of Eastern Europe or permission of the department.

Law 51.490

Directed Studies

A reading or research course for selected students who wish to investigate a particular topic of interest. Available to Third- and Fourth-year students only.

Prerequisite: Permission of the department.

Includes weekly workshops during First term.

Law 51.491★

Tutorial in Law

Members of the department are prepared to give reading courses in selected fields. Students are encouraged to enquire from individual instructors or the Supervisor of Honours in what fields such reading courses are available.

First term.

Law 51.492★**Tutorial In Law**

Members of the department are prepared to give reading courses in selected fields. Students are encouraged to enquire from individual instructors or the Supervisor of Honours in what fields such reading courses are available.

Second term.

Law 51.493★**Contemporary Legal Topics**

The topics of this course, to be offered as demand warrants, vary from year to year, and will be announced well in advance of the period of registration. Prerequisite: Permission of the department.

Day or Evening division, First term: Hours to be arranged.

Law 51.494★**Contemporary Legal Topics**

The topics of this course, to be offered as demand warrants, vary from year to year, and will be announced well in advance of the period of registration. Prerequisite: Permission of the department.

Day or Evening division, Second term: Hours to be arranged.

Law 51.498**Honours Essay**

Students in the Honours program must write an Honours Essay or a designated equivalent. Students in the Combined Honours program are required to write an Honours Essay in Law or a designated equivalent, unless they are writing the Honours Essay in the other discipline, in which case they are required to take Law 51.490, or a designated equivalent.

Includes weekly workshops during First term.

J. Barnes

Graduate Courses Open to Undergraduate Students**Law**

- 51.510F1 Advanced Problems in Legal Philosophy
- 51.521W1 Advanced Problems of International Economic Law
- 51.553W1 Advanced Legal Problems of Federalism
- 51.556W1 Advanced Administrative Law Problems
- 51.567W1 Advanced International Legal Problems

Courses Planned for Summer School and Evening Division 1983-85

As of publication of this Calendar, the department hopes to be able to offer the following courses during the Summer sessions and Evening divisions for the next two years. Changes may be made, however, and interested persons are urged to consult the department and to refer to future issues of the Calendar as they are published.

Summer 1983

51.101★, 51.102★, 51.200, 51.205, 51.220, 51.234, 51.284, 51.323, 51.324, 51.333, 51.353, 51.441, 51.463.

Evening Division 1983-84

51.100, 51.101★, 51.102★, 51.200, 51.205, 51.220, 51.234, 51.284, 51.320, 51.321, 51.324, 51.352★, 51.353, 51.355★, 51.374, 51.441, 51.445★, 51.463.

Summer 1984

51.101★, 51.102★, 51.200, 51.205, 51.220, 51.234, 51.284, 51.324, 51.353, 51.441, 51.450.

Evening Division 1984-85

51.100, 51.101★, 51.102★, 51.200, 51.205, 51.220, 51.234, 51.284, 51.301★, 51.320B, 51.322, 51.323, 51.324, 51.333, 51.352★, 51.353, 51.355★, 51.374, 51.380, 51.441, 51.445★, 51.463.

Law Enforcement Studies (Certificate)

Management Committee

Chairman and Program Co-ordinator
To be announced.

Program Supervisor
To be announced.

Members
D.P. Forcese, (*Dean, Faculty of Social Sciences*)
P. Fitzgerald, (*Law*)
J.G. Bellamy, (*History*)
F. Gildenhuys, (*Director, Continuing Education*)
One student

General Information

This Certificate program is designed primarily for persons employed in the areas of law enforcement, national security or corrections, who wish to attend university courses. The program is offered in Day and Evening divisions. Candidates for the certificate are also encouraged to investigate undergraduate degree programs offered by the University. Courses taken for the certificate are normally creditable towards a Bachelor of Arts degree. Such a degree program will normally require at least nine further courses in addition to those required for the certificate. At least five of the courses required for a Bachelor of Arts degree must be completed after the awarding of the certificate.

Admission Requirements

Senior Matriculation, with a 60% overall average, or Mature Matriculation, or Junior Matriculation and three years service in a police force (or equivalent agency). The cases of experienced applicants without Junior Matriculation will be considered on their individual merit and the completion of certain subjects at Carleton may be required before admission as provided by the University's Mature Matriculation policy. Candidates may be admitted with advanced standing but must complete at least five courses for the certificate at Carleton University.

Course Requirements

The following courses are required:

1. Law 51.234 (Law and Anti-social Behaviour);
2. Sociology 53.255★ and 53.256★ (Sociology of Deviance, and Police in Society);

3. Political Science 47.200 (Canadian Government and Politics);

The candidate must, in addition, complete three credits, chosen in consultation with the Program Co-ordinator, from a list of approved courses.

A candidate for the certificate must obtain a grade of C or better in at least one-half of the credits taken at Carleton University for the certificate.

Students are permitted nine attempts to complete the six-credit program.

Officers of Instruction

Acting Chairman
Aviva Freedman

Professors
William Cowan
Hans-George Ruprecht

Associate Professors
C. Stanley Jones
Jean-Pierre Paillet
Ian Pringle
Janice Yalden

Assistant Professors
Aviva Freedman
Jaromira Rakusan

General Information

The Department of Linguistics offers courses leading to Major and Honours degrees in linguistics. The aim of these courses is to provide the student with the theoretical and methodological bases and procedures for the analysis of language and languages, on both the descriptive and historical levels. In addition to the introductory course (Linguistics 29.100), there is a core of half courses dealing with special areas within linguistics, such as historical linguistics, semantics, psycholinguistics, sociolinguistics, language typology, language pedagogy and speech science. Advanced courses deal with phonetics, phonology, grammar, linguistic theory, and applied linguistics.

The Department of Linguistics offers a five-credit program leading to a Certificate in the Teaching of English as a Second Language for those students who already have a degree, in either linguistics or another subject, or who have extensive experience in teaching. The courses include the theory of teaching English as a second language, an intensive, advanced course in the structure of English, and a range of complementary half-credit courses.

English as a Second Language

For courses in English as a Second Language, see p. 152.

Major Programs

Students majoring in linguistics must complete the following courses:

Linguistics 29.100, 29.301★, 29.302★, 29.303★, 29.304★, 29.381★, plus three other credits in Linguistics. In

addition, all students must have a working knowledge of a modern language other than English, proficiency to be determined by successful completion of a university course in the language or by an oral or written test given by the department.

For Major programs combining linguistics with another subject students must complete:

Linguistics 29.100, 29.301★, 29.302★, 29.303★, 29.304★, plus one further credit in linguistics.

Honours Programs

For the Honours degree in linguistics students must complete:

Linguistics 29.100, 29.301★, 29.302★, 29.303★, 29.304★, 29.381★, plus six other credits in linguistics (including at least two and a half credits at the 400 level). In addition, all students must have a working knowledge of a modern language other than English, proficiency to be determined by successful completion of a university course in the language or by an oral or written test given by the department.

For a Combined Honours degree in linguistics, students must complete the following courses:

Linguistics 29.100, 29.301★, 29.302★, 29.303★, 29.304★, 29.381★, plus two and a half further course credits in linguistics (including at least one and a half at the 400 level). In addition, all students must have a working knowledge of a modern language other than English, proficiency to be determined by successful completion of a university course in the language or by an oral or written test given by the department.

For Combined Honours in Linguistics and Russian (Translation Option), the following courses are required:

Linguistics 29.100, 29.301★, 29.303★, 29.304★, 29.485, 29.490. (In this program, the Tutorial in Linguistics consists obligatorily of directed readings in the theory of translation.)

Certificate in the Teaching of English as a Second Language (CTESL)

To receive the Certificate in the Teaching of English as a Second Language, students must meet the following requirements:

Linguistics 29.100, 29.420, 29.421★, 29.422★, 29.423★, 29.462★, 29.485. (Part-time students who had already been admitted and had completed some courses towards the certificate before 1980-81 may, after discussion with the departmental adviser, elect to complete the certificate *either* in accordance with the foregoing requirements *or* in accordance with the earlier requirements, viz. 29.100, 29.420(220), 29.225, 29.285(485), and an approved option.) A candidate for

the certificate must obtain a grade of C or better in all courses taken at Carleton University under the certificate program. In addition, students in the CTESL program must be fluent in English, proficiency to be determined by an oral or written test given by the department.

It should be noted that students cannot receive both a B.A. degree and a certificate at the same time, nor can courses included in a B.A. or other degree be credited towards the certificate. If any of the foregoing linguistics courses are included in the B.A., then the student must choose other courses in linguistics in consultation with the department.

Admission Requirements

Applicants are admitted on the recommendation of the Department of Linguistics. Applicants have normally completed a first degree in another discipline, or a course of study in a teacher training college. Others with a strong academic background or with experience in the teaching of English as a second language may be admitted with permission of the department.

Courses Offered

Linguistics 29.100

Introduction to Linguistics

Elementary principles and methods of descriptive analysis of language; phonetics; phonology; morphology; syntax. Survey of other areas of linguistics: historical linguistics, sociolinguistics, psycholinguistics, semantics, applied linguistics.

Day and Evening divisions: Three hours a week.

Linguistics 29.211★

Historical Linguistics

Principles and methods of the historical analysis of languages; the comparative method; internal reconstruction; sound change; rule change; the philological method; problems in historical analysis.

Prerequisite: Linguistics 29.100.

Not offered 1982-83.

Linguistics 29.223★

Theoretical Bases of Applied Linguistics

Theoretical linguistics and psycholinguistics in second language pedagogy. Characteristics of current approaches to language teaching and an examination of relationships between methods and aims.

Prerequisite: Linguistics 29.100.

Evening division, First term: Three hours a week.

Linguistics 29.232★

Semantics

The study of meaning as a part of the study of communication. Organization of the semantic structure of language, and the relation of this structure to the lexicon.

Prerequisite: Linguistics 29.100.

Evening division, First term: Three hours a week.

Linguistics 29.261★

Psycholinguistics

Language performance and language use; the production and perception of language; psychological processes involved in speech performance; the relevance of these questions to linguistic theory.

Prerequisite: Linguistics 29.100.

Day division, First term: Three hours a week.

Linguistics 29.264★

Speech and Language Problems

An examination of the congenital, developmental and acquired disorders of language, speech and voice; prevalences, types, causes and effects; related research.

Prerequisite: Linguistics 29.261★.

Day division, Second term: Three hours a week.

Linguistics 29.271★

Sociolinguistics

The place of language within society; bilingual and multilingual communities; language, social mobility, and social stratification; sociolinguistic factors in language change.

Prerequisite: Linguistics 29.100.

Not offered 1982-83.

Linguistics 29.272★

Language Typology

The study of language typology as a classificatory device, universalist hypothesis, and areal features. Methodology in language typology. The theoretical material is based on a survey of the world's languages and language types.

Prerequisite: Linguistics 29.100.

Day division, Second term: Three hours a week.

Linguistics 29.297

Writing: Theory and Practice

A study of the process of writing in theory and practice. Reading and discussions focus on the nature of the composing process; the development of writing abilities from the elementary years to maturity; the interrelationships between thinking and writing; strategies for encouraging growth in writing. (Also listed as English 18.297.)

Prerequisite: Second-year standing or enrolment in the Certificate Program in English Language and Composition.

Evening division: Three hours a week.

Linguistics 29.301★

Phonetics

Recognition, description, transcription and production of speech sounds; systems of transcription; the nature of the speech-producing mechanism; the acoustics of speech sounds. (Also listed as Anthropology 54.301★.)

Prerequisite: Linguistics 29.100.

Evening division, First term: Three hours a week.

Linguistics 29.302★

Phonology

The sound-systems of languages; methods for the analysis and description of phonological structure. The course concentrates on generative theory with comparisons to other theories. (Also listed as Anthropology 54.302★.)

Prerequisite: Linguistics 29.301★.

Evening division, Second term: Three hours a week.

Linguistics 29.303★

Language Analysis

Direction and practice in the analysis of grammatical material, including both morphology and syntax. Models for the description of grammatical regularities. Course work consists principally of practical exercises. (Also listed as Anthropology 54.303★.)

Prerequisite: Linguistics 29.100.

Day division, First term: Three hours a week.

Linguistics 29.304★

Grammatical Theory

Comparison of major current schools of linguistics. Theories of grammatical structure. The testing of grammatical hypotheses. Grammatical structure and meaning. Course work consists principally of lectures and readings. (Also listed as Anthropology 54.304★.)

Prerequisite: Linguistics 29.303★.

Day division, Second term: Three hours a week.

Linguistics 29.381★

Language Structure

Intensive analysis of the linguistic structure of a selected language, the structure of which is not currently being offered elsewhere in the University. This course may be taken for credit twice, provided a different language is being studied. Language for 1982-83: Arabic.

Prerequisite: Linguistics 29.100.

Evening division, Second term: Three hours a week.

Linguistics 29.390

Independent Study

Research under the supervision of a member of the department. Projects may be organized on an individual basis, or as a special seminar directed by an instructor. No more than one group project is offered in any one year. Normally open only to Third- and Fourth-year students.

Prerequisite: Permission of the department.

Linguistics 29.391★

Independent Study

Research under the supervision of a member of the department. Projects may be organized on an individual basis, or as a special seminar directed by an instructor. No more than one group project is offered in any term. Normally available only to Third- and Fourth-year students in linguistics.

Prerequisite: Permission of the department.

First term.

Linguistics 29.392★

Independent Study

Research under the supervision of a member of the department. Projects may be organized on an individual basis, or as a special seminar directed by an instructor. No more than one group project is offered in any term. Normally available only to Third- and Fourth-year students in linguistics.

Prerequisite: Permission of the department.

Second term.

Linguistics 29.401★

Advanced Phonology

A continuation of Linguistics 29.302★. Among topics covered: the methodological problems of phonology, the problems of markedness and natural rules, ordering, abstractness, and other current theoretical developments.

Prerequisites: Linguistics 29.301★, 29.302★, 29.303★, 29.304★, or permission of the department.

Day division, First term: Three hours a week.

Linguistics 29.402★

Advanced Grammar

A continuation of Linguistics 29.304★. Among topics covered: global rules, clause movement, constraints, trace theory, and other current developments in syntactic analysis.

Prerequisite: Linguistics 29.301★, 29.302★, 29.303★, 29.304★ or permission of the department.

Day division, First term: Three hours a week.

Linguistics 29.409★

Seminar in Current Issues in Linguistics

Grammatical structure of texts: a semiotic approach. A research seminar on the process of text formation. Selected readings in semiotics with practical work on the syntactico-semantic representation of short narratives.

Prerequisite: Linguistics 29.301★, 29.302★, 29.303★, 29.304★ or permission of the department.

Day division, Second term: Two hours a week.

Linguistics 29.420

Teaching English as a Second Language

Linguistic theory, descriptions of English, and psycholinguistics applied to curriculum design and selection of methods of teaching English to non-native speakers. Tutoring of E.S.L. students.

Prerequisite or corequisite: Linguistics 29.100 and Third- or Fourth-year standing, or full-time enrolment in the CTESL program.

Day division: Three hours a week.

Linguistics 29.421★

Language Testing

The principles of test construction as applied to testing language proficiency, achievement and aptitude. Structural, notional, discrete point and integrative tests are covered. Students are expected to create, analyse and evaluate language tests.

Prerequisite: Linguistics 29.223★ or enrolment in the CTESL program.

Day division, Second term: Three hours a week.

Linguistics 29.422★

Techniques In Applied Linguistics

Course design, language laboratory materials, inventory of classroom techniques. Teaching reading and writing.

Prerequisite or corequisite: Linguistics 29.223★ or enrolment in the CTESL program.

Evening division, First term: Three hours a week.

Linguistics 29.423★

Analysis of Discourse

Principles of discourse analysis and their application in problems in applied linguistics, such as the effect of classroom discourse on second-language learning, and methods for expanding the variety of discourse in a classroom setting. Students are required to observe both actual classroom interaction and videotapes of classroom discourse, and to undertake detailed analysis of such discourse.

Prerequisite: Third- or Fourth-year standing in linguistics or enrolment in the CTESL program.

Day division, Second term: Three hours a week.

Linguistics 29.461★

Seminar In Experimental Linguistics

Experimental phonetics; the investigation of linguistic performance; the testing of propositions derived from the theory of linguistic competence.

Prerequisite: Linguistics 29.301★, 29.302★, 29.303★, 29.304★ or permission of the department.

Day division, First term: Three hours a week.

Linguistics 29.462★

Second Language Acquisition

Current models of second language acquisition and learning with an emphasis on empirical studies. Universals of second language acquisition.

Prerequisite: Linguistics 29.261★ or enrolment in the CTESL program.

Day division, First term: Three hours a week.

Linguistics 29.485

Structures of English

An intensive introduction to the structures of the English language, with particular emphasis on syntax; questions of usage and style; an introduction to regional, social and stylistic variation in English and to Canadian English.

Prerequisite: Linguistics 29.100 and Third- or Fourth-year standing, or full-time enrolment in the CTESL program.

Evening division: Three hours a week.

Linguistics 29.490

Tutorial In Linguistics

A course designed to permit students to pursue their interests in a selected area of linguistics. Students prepare papers as a basis for discussion with the tutor. The topic of study must have the prior approval of the tutor and the department. The course is available only to Fourth-year Honours students, and may be taken only once.

Prerequisite: Permission of the department.

Linguistics 29.491★

Tutorial In Linguistics

A course designed to permit students to pursue their interests in a selected area of linguistics. Students prepare papers as a basis for discussion with the tutor. The topic of study must have the prior approval of the tutor and the department. The course is available only to Fourth-year Honours students, and may be taken only once.

Prerequisite: Permission of the department.

First term.

Linguistics 29.492★

Tutorial In Linguistics

A course designed to permit students to pursue their interests in a selected area of linguistics. The student prepares papers as a basis for discussion with the tutor. The topic of study must have the prior approval of the tutor and the department. The course is available only to Fourth-year Honours students, and may be taken only once.

Prerequisite: Permission of the department.

Second term.

Linguistics 29.495

Research Seminar In English and Education

Investigation of recent developments in language study, rhetoric and composition, and studies of the literary imagination. Their implications for the teaching of English. (Also listed as English 18.495.)

Prerequisite: Linguistics 29.485 or English 18.295 and Linguistics 18.297, or permission of the department.

Evening division: Three hours a week.

For description of Management Studies courses offered in finance, human resources, management and business systems, marketing, business management and other selected studies, see School of Business, pp. 109-118.

Mass Communication

Supervisor of Undergraduate Studies
John R. Weston (*School of Journalism*)

Bachelor of Arts in Mass Communication

The School of Journalism (see p. 195) offers Major and Honours undergraduate programs in mass communication. Candidates for the Major program are required to take a minimum of fifteen credits after Senior Matriculation and those in the Honours program twenty credits after Senior Matriculation. The mass communication programs are provided for students with broad interests in mass communication in contemporary society who do not intend to pursue careers as professional journalists. The Honours degree is designed for students who intend to do graduate work in communication or a related field.

Admission and Continuation Requirements

Admission and continuation requirements in the two programs are those set by the Faculty of Arts.

Major Program

The minimum requirements for a Major in mass communication, which include five credits in mass communication, are:

1. Mass Communication 27.111, 27.201, 27.211, 27.311;
2. one credit chosen from Mass Communication 27.280, 27.290, Journalism 28.305★, 28.306★, 28.351★, 28.352★;
3. Sociology-Anthropology 56.220, Political Science 47.200;
4. one credit in either economics or philosophy;
5. seven electives.

Note:

Students are normally expected to take at least two of the credits in requirements 3 and 4 in their First year.

Combined Major Program

The requirements for a Combined Major including Mass Communication are requirements 1 and 2 of the Major program.

Honours Program

A candidate for a B.A. with Honours in mass communication requires nine credits in mass communication and three specified courses from other disciplines. The requirements are:

1. Mass Communication 27.111, 27.201, 27.211, 27.311, 27.401, 27.411, 27.497, Journalism 28.351★, 28.352★;

2. one credit chosen from Mass Communication 27.280, 27.290, Journalism 28.305★; 28.306★;

3. Sociology-Anthropology 56.220 and Political Science 47.200;

4. one credit in either economics or philosophy;

5. eight electives.

Recommended sequence for B.A. Honours in Mass Communication

First Year

Mass Communication 27.111;
Sociology-Anthropology 56.220;
One credit in economics or philosophy;
Two electives.

Second Year

Mass Communication 27.201 and 27.211;
Political Science 47.200;
Two electives.

Third Year

Mass Communication 27.311;
Journalism 28.351★; 28.352★;
One credit chosen from Mass Communication 27.280, 27.290; Journalism 28.305★, 28.306★;
Two electives.

Fourth Year

Mass Communication 27.401, 27.411, 27.497 (Honours Essay);
Two electives.

Combined Honours

Students taking combined Honours in mass communication and another discipline are required to take seven credits in the School of Journalism. These courses are Mass Communication 27.111, 27.201, 27.211, 27.311, 27.401, 27.411, Journalism 28.351★ and 28.352★. In addition, students are required to complete the Honours Research Essay or thesis in one of the Combined Honours departments.

Combined Honours in Journalism and Mass Communication

Course requirements are:

1. Journalism 28.100, 28.101★, 28.200, 28.220, 28.320, 28.321★, 28.351★, 28.352★, 28.421, and, if the Honours degree sought is the Bachelor of Journalism, Journalism 28.498;

Note:

Journalism 28.220 and 28.320 are two-credit courses.

2. Mass Communication 27.201, 27.311, 27.401, 27.411, and, if the Honours degree sought is a Bachelor of Arts, Mass Communication 27.497;

3. Sociology-Anthropology 56.220, Political Science 47.200, and one credit in either economics or philosophy;

4. a language credit other than English (preferably French); (acceptable First-year French courses are French 20.102 and 20.108);

5. an approved credit in Canadian history. (Students who expect to practise journalism in another country may be advised to choose a different history course);

6. approved options to make up a program total of twenty-one credits.

Courses Offered

Mass Communication 27.111

Introduction to Mass Communication

The course provides a foundation for understanding human and mass communications. It is a broad survey course including general semantics, communication theory, mass media issues, telecommunications, and the role of the media in political and social change. Discussion groups or workshops are connected with either projects or research assignments related to the course.

Day division: Lectures and discussion groups three hours a week.

Mass Communication 27.201

Media Research

An introduction to empirical research methods of media enquiry. The objects of the course are the development of an understanding of statistical analysis and research design and proficiency in computer analysis of research data.

Prerequisite: Second-year standing or higher, or permission of the School of Journalism.

Day division: Lecture two hours a week, laboratory one hour a week.

Mass Communication 27.211

The Mass Media in Modern Society

An examination of the historical development and current operations of the major mass media, with a view to relating developments to the larger social structure. Emphasis is on the relationship between the media and the structure of Canadian society. (Also listed as Sociology-Anthropology 56.211.)

Prerequisite: Mass Communication 27.111 or Journalism 28.100 or permission of the School of Journalism. Evening division: Lectures and seminars three hours a week.

Mass Communication 27.280

Language and Communication

Among theories about the nature of language that the course will examine are those of Skinner and the behaviourists; of Chomsky and other transformational-generative grammarians; and of the speech-act theorists. Among questions to which an answer will be

attempted are: What is language? What is meaning? What is it to communicate? Philosophical issues with respect to such topics as the following will be considered: language and innate knowledge; language and culture; translation; the origins and acquisition of language; nonverbal communication; nonhuman language; machine languages; ideal languages; normative grammar and 'correct' speech. (Also listed as Philosophy 32.280)

Prerequisite: Second-year standing.

Day division: Lectures and discussion three hours a week.

Mass Communication 27.290

Truth and Propaganda

A study of techniques, some ancient as well as modern, for influencing public opinion. The ethics of various attempts to control, affect or modify mass consciousness, under circumstances of wartime or peace, by the state, political parties, commercial interests or pressure groups, are discussed. Attention is paid to definition of key terms such as "propaganda," "manipulation," and the like, in the light of shifting nuances of different times and usages. The problem of arriving at a satisfactory definition of "truth" to compare or contrast with "propaganda" is one focal point of investigation. The values of an open society, as against those promoted by closed societies, also receive attention, account being taken of subtler as well as more obvious forms of censorship, and of external as well as internal attempts to influence or subvert public consciousness in a given society. (Also listed as Philosophy 32.290).

Day division: Lecture three hours a week.

Mass Communication 27.311

Advanced Study of the Mass Media

An examination of the philosophical and theoretical foundations of mass-communication studies. The course is an analysis of the content of selected theories with a view to assessing the contributions they make to the understanding of mass communication. (Also listed as Sociology-Anthropology 56.311.)

Prerequisite: Mass Communication 27.211 or Journalism 28.200 or permission of the School of Journalism.

Day division: Lecture and discussion groups three hours a week.

Mass Communication 27.401

Advanced Media Research

An advanced study of specific methodological issues and statistical techniques appropriate to the investigation of theoretical questions concerning mass communication and society. The course is primarily concerned with the selection of appropriate methodologies and models for investigating specific questions and for this reason the content of the seminar changes somewhat from year to year. Among the topics that may be considered are content analysis, multivariate analysis, scale construction techniques, path analysis and experimental and survey design.

Prerequisite: Mass Communication 27.201, Fourth-year standing in Mass Communication or permission of the School of Journalism.

Mass Communication 27.411

Selected Problems in Mass-Communication Analysis

In a given year, selected policies and practices of media and regulatory institutions are considered. Issues may include the political process, national sovereignty, national identity or cultural values in relation to mass communications. (Also listed as Sociology-Anthropology 56.411.)

Prerequisite: Fourth-year standing in Honours Mass Communication or permission of the School of Journalism or the Department of Sociology and Anthropology. Day division: Seminar three hours a week.

Mass Communication 27.497

Honours Essay

During their Fourth year, Honours candidates in Mass Communication are required to present a major research essay. The Honours Essay is carried out under the direction of a faculty supervisor who is either selected by the candidate or assigned early in the year. Candidates are examined orally on their essays.

Prerequisite: Final-year Honours standing in Mass Communication.*

*Students should refer to general Faculty of Arts regulations regarding submission of Honours Essays, (p. 97).

Bachelor of Arts Programs

The Department of Mathematics and Statistics (Faculty of Science) offers a wide variety of programs leading to Bachelor of Arts Major and Honours degrees, as well as Bachelor of Science degrees. The following is a list and short description of the programs that are available:

1. Mathematics

The B.A. Major programs emphasize methods and applications, whereas the B.A. Honours programs emphasize theoretical aspects and serve as an introduction to graduate studies. The main areas of concentration are algebra, analysis, topology, applied mathematics (classical and modern), statistics and probability. Of particular interest may be the combined Honours programs such as:

Economics and Mathematics
Mathematics and Philosophy

It is in fact possible to combine studies in mathematics with almost any other department in either the Faculty of Arts or Social Sciences at both the Major and Honours levels, subject to the approval of the course selections by the respective departments.

2. Computer Mathematics

The Major and Honours B.A. programs in Computer Mathematics are designed to provide a student with a background of computer-related mathematical ideas together with a firm base of computer science. These programs may be of interest to students who are preparing for careers in government, industry, management, or systems analysis.

3. Statistics

This program leads to an Honours B.A. degree and is designed primarily for a student who wishes to prepare for a career as a professional statistician.

4. Operations Research

This program is devoted to the professional discipline which deals with the scientific aspects of planning and decision-making and leads to an Honours B.A. degree.

Students wishing more details on these or the programs offered through the Faculty of Science should consult pp. 401-416. For further information contact the Assistant Chairman for Undergraduate Studies at 231-5500.

Department of Music

Officers of Instruction

Chairman
David Piper

Associate Chairman
Bryan Gillingham

Associate Professors
Bryan Gillingham
Alan Gillmor
David Piper

Assistant Professors
Patrick Cardy
Elaine Keillor

Adjunct Professor
Helmut Kallmann (*National Library of Canada*)

Sessional Lecturers
Jonas Barter
David Johnstone
Ann Schau
Donald Wallace

Demonstrators
Michael Bussiere
Jewell Couch
Richard Dacey
John Harris
David Johnstone
Jonathan Palevsky
Kathryn Palmer
Ann Schau

Instrumental and Vocal Instructors

Bassoon
Gerald Corey
Michael Namer

Cello
Mayda Narvy

Clarinet
James Wegg
Mary Wegg

Double Bass
Edward Hounsell

Flute
Jean-Guy Brault
Liliane Depocas
Cathy Rollins
Robert Van Wyck

French Horn
Nat Battersby

Guitar
John Dykes
David Johnstone

Douglas Reach
David Shore

Harpsichord
Dina Namer

Lute
John Dykes
David Johnstone
David Shore

Oboe
Veronica Milroy

Organ
Richard Dacey
Godfrey Hewitt

Percussion
Lisa Simmermon

Piano
Glen Carruthers
Richard Dacey
Barbara Gaizauskas
Netta Gale
Verna Jacobson
Dina Namer
Ann Schau
Irene Woodburn-Wright

Recorder
Gerald Corey
Anna Feldman
Barbara Gaizauskas

Saxophone
James Wegg

Trombone
Drummond Hudson

Trumpet
Roy McDonald

Tuba
Edward Hounsell

Viola da gamba
Donald Beecher

Violin/Viola
Joan Milkson

Voice
Donald Bell
Mona Bernardi
Gloria Nagy
Barbara Ross

General Information

The department offers courses leading to both Major and Honours degrees in music. The purpose of these courses is not principally to train students in the performing aspects of the subject (although half courses are given in applied music for Honours and Majors as

adjuncts to academic study) but rather to promote an intellectual and aesthetic understanding of music as an expression of human cultural activity. The study of music history and of the techniques and materials of music creation will form the basis of all study. All students will be encouraged to examine the meanings and motivations of the art and to develop their speculative and critical responses to it in both historical and contemporary contexts.

In addition to its undergraduate programs, the department offers courses in the history of Canadian music at the graduate level in co-operation with the Institute of Canadian Studies.

The department also sponsors a variety of performing groups including *Carleton Madrigal Singers*, *Carleton Medieval Consort*, *Carleton Renaissance Consort*, *Carleton Viol Consort*, and *Twentieth-Century Group*. These are open to all Carleton students and members of the community, and music Major and Honours students are required to belong to at least one of them. In addition, the department sponsors a variety of weekly concerts and occasional guest lectures which are considered necessary non-credit activity for all music students.

Major Programs (B.A.)

1. The Major program in music normally consists of a minimum of seven and a half full-course credits in music as follows:

- (a) Music 30.150 and Music 30.190★ to be taken during the First year;
- (b) courses totalling four full credits at the 200 level, normally to be completed by the end of the Second year;
- (c) the remaining two credits to be chosen from the 300 level.

2. It is also expected that some work will be undertaken in other disciplines.

3. Music Major students are required to attain a grade of at least C- in Music 30.150.

Combined Majors

For Major programs combining music with another subject the general rule is that they must include at least four full-course credits in music, of which two must be at the 200 level and one at the 300 level. Combined Majors are not eligible for performance courses.

Honours in Music (B.Mus.)

1. The Honours program in music normally consists of a minimum of eleven full-course credits in music as follows:

- (a) Music 30.150 and Music 30.190★ to be taken dur-

ing the First year;

(b) Music 30.250 and Music 30.290★ to be taken during the Second year;

(c) Music 30.210★, 30.211★, 30.212★, 30.213★, 30.214★, 30.215★ and 30.216★ are to be completed by the end of the Third year;

(d) in addition, four and one half more credits in music are to be taken, which must include Music 30.350 and Music 30.390★ and 30.490★ (normally taken in the Third and Fourth years respectively) and either Music 30.460 or Music 30.498 (each of which carries double weight in assessing the class of degree awarded to B.Mus. students).

Note:

Performance courses are required as an adjunct to academic study and as a means of furthering general musical growth. Normally, the Honours student is required to elect performance courses in each year of residence at Carleton.

2. Honours students will also normally be required:

- (a) to take at least one credit in a language other than English;
- (b) to undertake work in other disciplines.

3. Music Honours students are required to attain a grade of at least C- in Music 30.150, 30.250 and 30.350.

Combined Honours Programs (B.A. Hons.)

Students who wish to propose a Combined Honours program must consult the department. Normally they will be required to take six credits which must include either Music 30.460 or 30.498 and at least two credits at the 200 level and two credits at the 300 level. Students in the Combined Honours program are not eligible for the Performance courses.

Diploma in Music

This program is designed to attract individuals who have a strong background in performance on a musical instrument or voice, have been involved in the teaching of music, and who are desirous of obtaining additional academic qualifications. The program consists of five credits as listed below plus a graduating recital approximately thirty minutes in length. This recital is conducted on a pass/fail basis and will include viva voce questions related to the diploma requirements.

Courses taken for the Diploma are normally creditable towards a Bachelor of Arts or Bachelor of Music degree and a transfer student from the Diploma program into a degree program will normally be required to take at least ten (or, in the case of B.Mus., fifteen) further credits in addition to those required by the Diploma.

If a student already holds a degree in music such a student must take for the Diploma five credits other than those already completed. Permission of the department is required for the choice of these five credits.

Admission Requirements

Applicants will be admitted on the basis of an audition to be held in the spring of each year. Although normal admission requirements are senior matriculation and an adequate level of performance, special consideration will be extended to other applicants under mature matriculation regulations.

Course Requirements

1. One Music Theory credit (normally Music 30.150);
2. Two Music History credits (normally Music 30.100 plus one full credit at the 200 level);
3. One full credit in Music Performance (30.495). Prospective candidates should consult the department about possible exemption from this requirement through Carleton's "Challenge for Credit" policy;
4. One full credit Music elective (to be chosen in consultation with the department);
5. A recital of approximately thirty minutes duration plus a *viva voce* examination on aspects of the course. This requirement is conducted entirely on a pass/fail basis and no grade is awarded.

Candidates are normally required to complete all of these at Carleton University.

Academic Standing

A candidate for the Diploma must obtain a grade of C+ or better in at least four of the five required courses.

Courses Offered

The majority of courses are open to non-majors; students are advised to consult the department.

Music 30.100

Introduction to the Music of Western Civilization

This course provides a general perspective of music history and literature from the Middle Ages to the present within the context of Western Civilization. It includes a consideration of main trends and significant personalities with emphasis on the listening experience itself. (Section A)

Day division: Lectures three hours a week.

A. Gillmor

This course is also offered in a regulated self-instruction format involving a one-hour public TV broadcast each week plus reading and writing assignments. In addition, attendance at occasional weekend on-campus tutorial sessions is encouraged. (Section V)

A. Schau

Music 30.115

Elementary Materials of Music

A course for those who, although interested in the theory of music, have had no opportunity to study it systematically. Rudiments, elementary harmony and basics of melodic writing are taught in the theoretical part of the course. There is also practical study on piano or guitar as well as aural training and elementary musical dictation. The emphasis throughout is on analytical listening. This course is not accepted, even as an option, toward the requirements of a Major or Honours degree in music.

Evening division: Lectures two hours a week plus seminars.

D. Johnstone

Music 30.150

Materials and Techniques of Music I

A theoretical and practical study of rhythm, melody, harmony, counterpoint and structures of the common practice period. Aural training, keyboard harmony and the writing of music are pursued.

Prerequisite: Some keyboard facility (or facility in the classical guitar may be considered) and permission of the department.

Day division: Lectures three hours a week plus a one-hour practical class.

P. Cardy

Music 30.190★

Performance I¹

Vocal or instrumental instruction for music Majors and music Honours students only. A reasonable standard of achievement is demanded on entry and every prospective student is required to attend an audition conducted by the department before being admitted. There is a further audition before a student may proceed to Music 30.290★.

Individual tuition, one half hour a week.

Music 30.195★

Performance I²

Instruction for music Majors and music Honours students only, in a second instrument of their choice. There is an audition before a student may continue this study in Music 30.295★.

Individual tuition, one half hour a week.

Music 30.210★

Music in the Middle Ages

A survey of European music from the beginning of the Christian era to the end of the fourteenth century, including the study of secular monophony, liturgical music and medieval polyphony.

Not offered 1982-83.

Music 30.211★

Music in the Renaissance

The development of vocal and instrumental music from 1400 to 1600, including examination of the important works by the Masters of the Burgundian and Flemish schools, of Roman and Protestant church

music, of the Italian madrigal, the French chanson and Elizabethan music.
Not offered 1982-83.

Music 30.212★

Music in the Baroque Era

A survey of European music and its environment from approximately 1600 to the deaths of Bach and Handel. Topics include: Secular vocal music; solo and concerted instrumental music; music for the Catholic and Protestant churches; the music and significance of major personalities from Monteverdi and Schuetz to Bach and Haendel.

Evening division, First term: Lectures three hours a week.

E. Keillor

Music 30.213★

Music in the Classical Era

A study of European music from the early eighteenth century to the beginning of Romanticism. The evolution of the Classical style is traced in the important works of composers from the 1720s to the Viennese school of Haydn, Mozart and Beethoven.

Evening division, Second term: Lectures three hours a week.

E. Keillor

Music 30.214★

Music in the Romantic Era

A survey of Western music from the age of Beethoven to the late nineteenth century. Important genres (opera, art-song, symphony and symphonic poem) as well as individual and national styles are examined in the context of the socio-political climate of the period.

Day division, First term: Lectures three hours a week.

A. Gillmor

Music 30.215★

Twentieth-Century Music to World War II

Music from *Tristan und Isolde* to circa 1945, including an examination of modern idioms from Debussyan impressionism to Viennese expressionism, nationalism, and Stravinskyan neoclassicism.

Day division, Second term: Lectures three hours a week.

A. Gillmor

Music 30.216★

Music Since World War II

A study of selected aspects of the musical avant-garde in the Western classical tradition since circa 1945, including post-Webern serialism, colouristic and textural composition, music of political commitment, electronic music, musical theatre, process music, and the music of chance.

Evening division, Second term: Lectures three hours a week.

D. Piper

Music 30.250

Materials and Techniques of Music II

A continuation of Music 30.150. The study progresses to more complicated and advanced stages involving the study of styles from European modal writing to twentieth-century idioms. Keyboard harmony, aural dictation and written work form the basis of the study. Prerequisite: Music 30.150 with a grade of at least C- or permission of the department.

Day division: Lectures three hours a week plus a one-hour practical class.

D. Piper

Music 30.290★

Performance II ¹

A continuation of Music 30.190★ for music Majors and music Honours students only. An audition is necessary before a student may proceed to Music 30.390★. Individual tuition, one half hour a week.

Music 30.295★

Performance II ²

A continuation of Music 30.195★ for music Majors and music Honours students only.

Individual tuition, one half hour a week.

Music 30.310★

Music in Canada 1600-1920

An historical survey of musical life in Canada from 1600 to 1920. Topics include: music in New France; French-Canadian folksong; Indian traditional song and dance; musical life in the nineteenth century; popular music in Canada; early composers; music in performance.

Not offered 1982-83.

Music 30.311★

Canadian Music in the Twentieth Century

A study of Canadian composition in the twentieth century with special reference to post-1945 developments. Not offered 1982-83.

Music 30.312★

American Music 1620-1920

An historical survey of American music from Puritan New England to the Boston Classicists. The evolution of American music is traced through the sacred and secular music of the seventeenth and eighteenth centuries and the cultivated and vernacular traditions of the period circa 1820-1920.

Not offered 1982-83.

Music 30.313★

American Music in the Twentieth Century

An historical survey of American music since circa 1920, including an examination of the works of the American nationalists, Gershwin and the third stream, Ives and the experimentalists, blues, jazz and rock, and post-1945 developments in serialism, electronic music and indeterminacy.

Evening division, First term: Lectures three hours a week.

A. Gillmor

Music 30.315

Music Cultures of the World (Elementary Ethnomusicology)

A comparative and analytical study of music in non-literate, folk, and Asian high cultures, through an examination of musical instruments, theoretical systems and the role of music in society.

Day division: Lectures three hours a week.

E. Keillor

Music 30.340★

A History of Opera before 1800

A survey of the development of opera from the beginnings to about 1800. The course deals with the major monuments of Italian, French, German and English opera, by such composers as Monteverdi, Cavalli, Scarlatti, Purcell, Lully, Gluck, Rameau, Mozart and Haydn.

Not offered 1982-83.

Music 30.341★

A History of Opera from 1800 to the Present

A study of the modern operatic tradition from approximately 1800 to the present day, including such topics as German romantic opera, French grand opera, Italian lyricism and verismo, Russian realism and German expressionism, Brecht, Weill and Marxism, Britten and the English school.

Day division, Second term: Lectures three hours a week.

A. Gillmor

Music 30.342★

A History of the Madrigal

A study of the development of the madrigal and its social milieu from its earliest stages to the middle of the seventeenth century through a detailed examination of selected works from the Italian and English schools.

Prerequisite: Music 30.211★.

Not offered 1982-83.

Music 30.350

Materials and Techniques of Music III

In part a continuation of Music 30.250 and a specialized course for students who wish to study the theory of music in some depth, possibly as preparation for post-graduate work.

Prerequisite: Music 30.250 with a grade of at least C- or permission of the department.

Not offered 1982-83.

Music 30.355

Stylistic and Structural Analysis

A study of techniques of musical structure and their application in historical and contemporary styles.

Prerequisite: Music 30.150, some or all of 30.210★ to 30.216★, or permission of the department.

Day division, Lectures three hours a week.

P. Cardy

Music 30.360

Composition

A course for students who possess an aptitude for composition and wish to study basic compositional techniques and their application through the writing of original music.

Prerequisite: Permission of the department.

Day division.

P. Cardy

Music 30.361

Orchestration

A study of the instruments of the orchestra, their historical background, ranges and technical abilities, as well as work in the development of fluency in score reading and analysis. Students apply the techniques studied to the preparation of assignments involving the orchestration, for various small and large ensembles, of works from a variety of historical periods.

Prerequisite: Permission of the department.

Not offered 1982-83.

Music 30.362

Electronic Music Studio Techniques

A course designed primarily as a practical study of electronic music studio techniques for the purpose of acquiring basic skills necessary for composition and performance in the studio medium. Enrolment for this course is limited.

Prerequisite: Permission of the department.

Day division: Class two hours a week, plus individual studio time.

D. Johnstone

Music 30.363★

Computer Music I

An introduction to the techniques of digital sound synthesis through practical experience at the computer. After instruction in the basics of machine operation, students will be assigned individual computer time in order to experiment with the various aspects of sound production. A background in computer science or mathematics is not essential. Enrolment for this course may be limited.

Evening division, First term: Lectures three hours a week plus individual studio time.

D. Wallace

Music 30.364★

Computer Music II

A continuation of Music 30.363★. The various applications of the computer in contemporary music will be examined. Topics include: the development of computer music, digital sound synthesis, structural music, programmed music, computer-assisted composition, and various composition programs including PRI and POD6.

Evening division, Second term: Lectures three hours a week plus individual studio time.

D. Wallace

Music 30.390★**Performance III**

A continuation of Music 30.290★ for music Majors and music Honours students only. An audition is necessary before a student may proceed to Music 30.490★. Individual tuition, one half hour a week.

Music 30.420★ to 30.429★**Specialized Studies in Selected Topics**

The topics are designed to reflect faculty research interest and have included such areas as: the piano concertos of Mozart; the Beethoven piano sonatas; the piano music of Schumann; formal processes in the music of Stockhausen; the classical string quartet; and computer music. Half courses may be offered in either the First or Second term and students should consult the department for further details concerning course content.

Not offered 1982-83.

Music 30.430★**Notation of Medieval and Renaissance Music**

An introduction to the notation of medieval and renaissance music with emphasis on the major paleographic and transcriptional problems to be encountered in early chant notation, square and Franconian notations, the innovations of the Ars Nova and mannerist phases, white notation, and various lute tablatures. Examples are selected, for detailed study and transcription, from the ninth to sixteenth centuries. Prerequisite: Music 30.210★ or permission of the department.

Not offered 1982-83.

Music 30.431★**Twentieth-Century Musical Notation**

A seminar in twentieth-century notation, considering the modification of existing systems to accommodate new compositional and performance practices and the development of new systems. Topics discussed include the psychology of notation, information theory in music, classification systems, graphic notation, indeterminate scores and calligraphic techniques. Prerequisite: Music 30.216★ or permission of the department.

Day division, First term: Seminar three hours a week.
P. Cardy

Music 30.450**Materials and Techniques of Music IV**

A continuation of Music 30.350 proceeding to the writing of extended works in a variety of idioms from the early Renaissance to the twentieth century. The emphasis is less on the production of original compositions than on the study of stylistic compositional techniques through analysis and pastiche writing. A measure of continuo realization and editorial procedures is included.

Prerequisite: Music 30.350 with a grade of at least C- or permission of the department.

Not offered 1982-83.

Music 30.455**Advanced Analysis**

A continuation of Music 30.355 to include an in-depth analysis of a small number of selected works chosen from some or all of the major historical periods from the Middle Ages to the contemporary avant-garde. Not offered 1982-83.

Music 30.460**Advanced Composition**

This course is designed for students with a displayed aptitude for composition, and centres around the writing of original work, some of which must be prepared for performance. Students are required to produce several works for either instrumental/vocal or electronic media or both. In addition to the preparation of original work, seminar groups are held during which music by established composers of diverse styles and techniques is studied and critical discussion of each student's work-in-progress is encouraged.

Seminar and individual supervision, plus private time in the electronic music studio as required. For students wishing to use the electronic music studio facilities, enrolment may have to be limited.

Prerequisite: Music 30.360; in addition some or all of Music 30.350, 30.355, 30.361, 30.362, 30.363★ and 30.364★, though not specifically required, are highly recommended.

Day division.

D. Piper

Music 30.490★**Performance IV**

A continuation of Music 30.390★ for music Honours students only. A final audition in the form of a short prepared recital is required.

Individual tuition, one half hour a week.

Music 30.495**Performance (Diploma in Music)**

A full course in performance designed exclusively for Diploma in Music candidates.

Music 30.498**Honours Essay in Musicology**

An Honours research essay of approximately fifty pages in length on a topic chosen in consultation with the department and an assigned supervisor. A high level of personal research and subsequent presentation is required.

Music 30.510 and Music 30.511★ and 30.512★**Graduate Studies in Canadian Music**

See Graduate Studies and Research Calendar.

Operations Research

Program Co-ordinator

R. Fischler
Department of Mathematics and Statistics
Room 617 Arts Tower
Telephone 231-6781 or 231-5500.

This program leads to either a B.A. or B.Sc. Honours degree.

General Information

Operations research is the generic name given to a wide range of activities associated with planning and decision making. The techniques used are many and varied. They include mathematical modelling, optimization, statistical analysis, stochastic processes and computer simulation.

This career-oriented program, while giving a strong base in the above techniques, exposes the student to various applications, including economics and management studies.

The program at Carleton will appeal to students who are good in mathematics and who are interested in computing and the application of mathematical techniques to real-life situations. Graduates of the program will also receive the "Diploma in Operations Research" from the Canadian Operational Research Society and will be prepared for positions in a wide variety of industrial and governmental organizations; they will also be qualified to continue in a graduate program in Operations Research.

Admission Requirements

The admission requirements for this program are the same as those specified for the B.A. Honours program (see p. 96) and the B.Sc. Honours program (see p. 364).

Course Requirements

For full details of course requirements see pp. 417-418.

Officers of Instruction

Chairman

S.G. Clarke

Majors Adviser

John W. Leyden

Honours Adviser

James M. Thompson

Professors

Bernard Wand

J.C.S. Wernham

Associate Professors

J.A. Brook

B.I. Egyed

Andrew Jeffrey

Randal R.A. Marlin

Stephen Talmage

James M. Thompson

J. Wolfe

Assistant Professors

Stanley G. Clarke

D.E. Dubrule

Marvin Glass

John W. Leyden

Courses Open to First Year Students

The following full-credit courses are open to First-year students: Philosophy 32.100, 32.150 and 32.200. The following half-credit courses are open to First-year students: in the First term Philosophy 32.103★, 32.109★ and 32.201★; in the Second term Philosophy 32.101★ and 32.106★. Credit will not be given for more than two full-credit courses or the equivalent at the 100 level.

Major Program

Majors in philosophy will present a minimum of six full credits in philosophy including five full credits beyond the 100 level.

These full credits must be chosen to include one of Philosophy 32.205, 32.215, 32.225, 32.305; one of Philosophy 32.251★ and 32.252★, 32.280, 32.335, 32.380; and one of Philosophy 32.211★ and 32.212★, 32.240, 32.330.

Special arrangements will be made for students proposing a Combined Major program. The normal requirement in philosophy is five courses, including four beyond the 100 level.

All Majors and Combined Majors will arrange their programs in consultation with the department.

Students who enter the Major program before the end of First year may not continue in it unless, before the beginning of Second year, they have obtained a grade of C- or better in one of the introductory courses in Philosophy. Students may not enter the Major program at the end of First year or later, unless they have obtained a grade of C- or better in one of the introductory courses in philosophy, or a grade of B- or better in Humanities 10.100.

Honours Program

The Honours program may be entered at the beginning of the First year or by transfer from the Major course (p. 96). Students intending to enter the Honours program should include 1.0 full credit in philosophy at the 100 level in the First-year program. In certain circumstances this requirement will be waived for students entering the Honours or Combined Honours program after the First year, who may be permitted to substitute an upper year course in philosophy.

The Honours program consists of a minimum of 20.0 full credits. Of these at least 9.0 full credits, including 8.0 full credits beyond the 100 level, are courses in philosophy. The program for the Second and subsequent years is planned in consultation with the department. The following courses are required:

1. one of Philosophy 32.205, 32.225, 32.270, 32.305, 32.380;
2. either Philosophy 32.211★ and 32.212★ or 32.330;
3. Philosophy 32.215;
4. Philosophy 32.335;
5. either Philosophy 32.251★ and 32.252★ or 32.380;
6. Philosophy 32.306★ (if 32.305 not taken under 1);
7. 2.0 full credits at the 400 or 500 level.

Combined Honours Programs

Combined Honours programs are available in philosophy with the following subjects: art history, English, history, journalism, law, political science, Greek, economics, French, German, mathematics, psychology, religion and sociology-anthropology. Special arrangements may be made for other combinations.

The philosophy requirements are 7.0 full credits, to include six beyond the First-year level including 1.0 full credit at the 400 or 500 level. Details of these programs may be obtained from the department.

Graduate Program

The Department of Philosophy offers studies leading to the degree of Master of Arts. For information see the Graduate Studies and Research Calendar.

Courses Offered

Philosophy 32.100

Themes in the History of Philosophy

This course is designed to familiarize the student with philosophical issues through historically influential writings. The development of a number of themes is traced through the texts of major philosophers in the Western tradition. Among these themes are the nature and extent of human knowledge, the validity of religious beliefs and moral values, the nature and destiny of man and the purpose and importance of philosophical thinking.

Day division: Lectures and discussion three hours a week.

S.G. Clarke, J. Wolfe

Summer Evening division.

Philosophy 32.101★

Ethics and Philosophy of Religion

An examination of arguments for and against the existence of God; the nature of religious language and the meaning and justification of moral judgments.

Evening division, Second term: Lectures and discussion three hours a week.

J. Wolfe

Philosophy 32.102★

Knowledge and Meaning

The justification of our belief in an external world and in the possibility of predicting the future, the nature of knowledge and of ultimate reality, the nature of language and the meaning of "meaning".

Not offered 1982-83.

Philosophy 32.103★

Philosophical Texts I

An examination, both historical and critical, of selected philosophical texts. Works to be studied include Plato, *The Republic* and Descartes, *Meditations*. Evening division, First term: Lectures and discussion three hours a week.

A Jeffrey

Philosophy 32.106★

Metaphysics and Truth

A discussion of the following questions: how mind is related to body; what freedom is and whether it is possible; what truth is and how philosophical truths differ from truths of science.

Day division, Second term: Lectures and discussion three hours a week.

J.A. Brook

Also to be offered off campus in 1982-83

Philosophy 32.107★

Philosophical Texts II

An examination, both historical and critical, of selected philosophical texts. Works to be studied include Hume, *An Enquiry Concerning Human Understanding*; Ayer, *Language, Truth and Logic*.

Not offered 1982-83.

Philosophy 32.108★

The Problem of Value

A critical examination of the ways in which evaluations may be made in the conduct of human life. Can we justifiably distinguish between actions as right or wrong? Can we impartially assess some societies as preferable to others? Can we give acceptable reasons for claiming that one work of art is better than another?

Offered off campus in 1982-83.

Philosophy 32.109★

The Philosophy of Economic Activity

An examination of economic activity as it relates to the principles of social organization, moral rules and religious attitudes. Among the themes receiving special attention are: the nature of property, competition and planning, the status of work, corporate rights and responsibilities, profits and social needs, and distributive justice.

Day division, First term: Lectures and discussion three hours a week.

B. Wand

Philosophy 32.120

Reason and Argument

An examination of the nature of controversy and of procedures for help in resolving it by rational means. The course includes an introduction to formal logic. A variety of extended arguments are considered. Some of these arguments (about half) are philosophical; others are arguments in support of controversial theses in such fields as morals, politics, education and theology.

Not offered 1982-83.

Philosophy 32.150

Contemporary Moral, Social, and Religious Issues

A critical examination of some of the philosophical problems associated with such topical issues as feminism (e.g. marriage, the family, abortion, and sexual ethics); atheism vs. theism; the meaning of life (e.g. existentialism); moral relativism vs. moral objectivism; egoistic vs. non-egoistic ethics (e.g. Ayn Rand and utilitarianism); euthanasia and capital punishment; legal paternalism (e.g. "hard" and "soft" drugs, suicide, medicare); free will; civil disobedience and the right of nations to self-determination.

Day division: Lectures and discussion three hours a week.

M. Glass

Summer Evening division.

J. Wolfe

Philosophy 32.200

Science and Man

Topics include the scientific view of the world, scientific revolutions and the growth of knowledge and objectivity. Specific attention is paid to fundamental concepts such as observation, explanation, causation and induction. The course concludes with an examination of the biological and social sciences.

Open to First-year students.

Day division: Lectures and discussion three hours a week.

S. Clarke

Philosophy 32.201★

Logic

An introduction to the techniques and philosophical implications of formal logic with emphasis on the following issues: translation of expressions into symbolic form, formulation and application of the rules of valid inference, the relation between logic and language, and the nature of logical necessity.

Open to Qualifying-University and First-year students.

Day division, First term: Lectures and discussion three hours a week.

B.I. Egyed

Philosophy 32.202

Ideas of Man and Society in Canada

An examination of Canadian ideas of man, culture and society in the context of their philosophical traditions. Emphasis is placed on the themes of nationalism; man's interaction with his natural and technical environment; the individual's relation to his past, his society and his culture; and the ideological aspects of traditionalism, social reform and revolution. The following representatives of Canadian thinking, among others, are discussed: G. Grant, C.B. McPherson, F. Dumont. Day division: Lectures and discussion three hours a week.

B.I. Egyed

Philosophy 32.205

Greek Philosophy

An examination of early speculation in Greece, the roles of the Sophists and of Socrates, together with a study of selected topics in the works of Plato and Aristotle. (Also listed as Classical Civilization 13.240.)

Prerequisite: An introductory course in philosophy or Second-year standing.

Day division: Lectures and discussion three hours a week.

A. Jeffrey

Philosophy 32.211★

History of Ethics

An examination of historical discussions of the principal questions in moral philosophy: Hobbes on egoism and obligation, Butler on conscience, Kant on moral principles, J.S. Mill on utilitarianism.

Prerequisite: An introductory course in philosophy or Second-year standing.

Day division, First term: Lectures and discussion three hours a week.

J.C.S. Wernham

Philosophy 32.212★

Contemporary Ethical Theory

A critical approach to the nature of morality, the meaning of moral language and the justification of moral claims studied through influential twentieth century writings. G.E. Moore, C.L. Stevenson, R.M. Hare and Philippa Foot set the context for more recent contributions.

Prerequisite: An introductory course in philosophy or Second-year standing.

Day division, Second term: Lectures and discussion three hours a week.

J. Wolfe

Philosophy 32.215

Modern Philosophy: 1600-1800

An examination of the major philosophical writers of the seventeenth and eighteenth centuries. Selections are studied from the works of Descartes, Spinoza, Leibniz, Locke, Berkeley, Hume.

Prerequisite: An introductory course in philosophy.

Day division: Lectures and discussion three hours a week.

A. Jeffrey, J.C.S. Wernham

Philosophy 32.220

Introduction to Marxist Philosophy

This course focuses primarily on the philosophical writings of Marx, Engels and Lenin. Materials used are intended to give the student an understanding of the Marxist world-outlook as a whole, and at the same time of the Marxist approach to such special branches of philosophy as theory of history, theory of knowledge, social and political philosophy, philosophy of science and ethics. Topics such as materialism vs. idealism, dialectical vs. non-dialectical thinking, absolute vs. relative truth, freedom vs. necessity, human nature, alienation, and ideology will be discussed. Secondary source material will include the writings of both proponents and critics of Marxism.

Prerequisite: An introductory course in philosophy or Second-year standing.

Day division: Lectures and discussion three hours a week.

M. Glass

Philosophy 32.225

Reason and Revelation

A study of the evolution of western philosophy up to the end of the Renaissance. Theories of man, knowledge and reality are traced from the early rationalism of the Greeks through the syntheses of reason with Christianity in the Middle Ages to the humanist rationality of the Renaissance. In-depth studies are made of six important thinkers: Plotinus, Augustine, Thomas Aquinas, William of Ockham, Montaigne and Francis Bacon.

Prerequisite: An introductory course in philosophy or Second-year standing.
Not offered 1982-83.

Philosophy 32.240

Aesthetics

Analysis of problems in the description, interpretation and evaluation of works of art, including music, literature and the visual arts, together with the study of types of aesthetic theory.

Prerequisite: An introductory course in philosophy or Second-year standing.

Day division: Lectures and discussion two hours a week.

J.M. Thompson

Philosophy 32.241★

Aesthetics

The first half of Philosophy 32.240, Aesthetics. (For Architecture students only.)

Prerequisite: Permission of the department. Only for students who will take Philosophy 32.242★ in a later year.

Day division, First term: Lectures and discussion two hours a week.

J.M. Thompson

Philosophy 32.242★

Aesthetics

The second half of Philosophy 32.240, Aesthetics. (For Architecture students only.)

Prerequisite: Philosophy 32.241★.

Day division, Second term: Lectures and discussion two hours a week.

J.M. Thompson

Philosophy 32.245★

Philosophy of the Paranormal

A philosophical examination of claims, concepts, theories and methods in parapsychology as well as astrology and other occult studies. Consideration is given to the question of their scientific character and the relation of paranormal and occult phenomena to philosophical issues such as survival of death, the immortality of the soul and the nature of man, time, space, causality and perception. Specific topics dealt with vary from year to year, but the following are likely to be included: telepathy, clairvoyance, precognition, retrocognition, psychokinesis, out-of-body experiences, mental mediumship, demonic possession, apparitions and time travel.

Prerequisite: An introductory course in philosophy or Second-year standing.

Not offered 1982-83.

Philosophy 32.246★

Death

A study of some major issues in philosophical thanatology. Problems considered include philosophical concepts of death, medical and legal definitions of death and the meaning and implications of some ways of dying: suicide, euthanasia, infanticide, abortion,

murder and capital punishment. (Students are reminded of complementary courses: Philosophy 32.245★ and 32.251★ and Religion 34.238★.)

Prerequisite: An introductory course in philosophy or Second-year standing.

Not offered 1982-83.

Philosophy 32.251★

Personal Identity and the Self

What is it to have a sense of one's own identity? What do we know of the self? What is personal identity and how is it related to responsibility, love, etc? What is the relation of 'mind' to body?

Prerequisite: An introductory course in philosophy. Evening division, First term: Lectures and discussion three hours a week.

J.A. Brook

Philosophy 32.252★

Philosophy of Mind

Topics are selected according to students' interests, and often include: free will; pleasure and pain; mental illness; desire and action; can we will our beliefs; and how to treat persons as persons, not things.

Prerequisite: Philosophy 32.251★.

Evening division, Second term: Lectures and discussion three hours a week.

J.A. Brook

Philosophy 32.260

Philosophy of Religion

A philosophical examination of some characteristic concepts of religion, such as faith, hope, worship, revelation, miracle, God. (Also listed as Religion 34.260.)

Prerequisite: An introductory course in philosophy or Second-year standing.

Not offered 1982-83.

Philosophy 32.265

Philosophy of Education

A philosophical study of what are and what should be the goals of education. Roughly equal time is spent discussing problems related to pre-university and university education. The conservative, liberal, anarchist and Marxist concepts of education are outlined and evaluated. The views of Marx, Russell, Dewey, Piaget, Neill, Kohlberg, Peters, Wolff, and Illich, among others, are considered in relation to such problems as freedom and authority in education, education and ideology, deschooling society, grading, moral education and moral indoctrination, "I.Q." testing, the nature of the curriculum, racism and the university, and the "ivory tower" conception of the university. Some time is devoted to a comparison of educational philosophies in North America and socialist countries.

Not offered 1982-83.

Philosophy 32.266★

Personal Ideals and Lifestyles

Problems of describing, analysing and evaluating personal ideals and lifestyles are investigated. Emphasis

is given to the works of Iris Murdoch and Albert Camus.

Not offered 1982-83.

Philosophy 32.270

Existentialism and Phenomenology

A study of recent and contemporary philosophical movements in continental Europe. An account is given of the historical origins of these movements in the thought of Kierkegaard and Husserl. Special attention is paid to the philosophy of Sartre. The views of Nietzsche, Heidegger, Camus and Merleau-Ponty, together with those of some of their commentators, will also be discussed.

Prerequisite: An introductory course in philosophy or Second-year standing.

Day division: Lectures and discussion three hours a week.

R.R.A. Marlin

Philosophy 32.280

Language and Communication

Among theories about the nature of language that the course examines are those of Skinner and the behaviourists; of Chomsky and other transformational-generative grammarians; and of the speech-act theorists. Among questions to which an answer is attempted are: What is language? What is meaning? What is it to communicate? Philosophical issues with respect to such topics as the following are considered: language and innate knowledge; language and culture; translation; the origins and acquisition of language; nonverbal communication; nonhuman language; machine languages; ideal languages; normative grammar and 'correct' speech. (Also listed as Mass Communication 27.280.)

Prerequisite: An introductory course in philosophy or Second-year standing.

Day division: Lectures and discussion three hours a week.

Philosophy 32.284★

Society, Value and Technology

An examination of some ethical problems raised by actual and conceivable advances in technology. In the light of the present and future supply of resources, the modern urban environment and communication systems, what sort of society should we strive for? Specific issues dealt with include genetic engineering, obligations to future generations, triage and fair distribution of the world's vital resources, privacy and social control and the ideas of progress and growth. Prerequisite: A full introductory credit in philosophy or permission of the department.

Not offered 1982-83.

Philosophy 32.290

Truth and Propaganda

A study of techniques, ancient as well as modern, for influencing public opinion. The ethics of various attempts to control, affect or modify mass consciousness, under circumstances of wartime or peace, by the

state, political parties, commercial interests or pressure groups, are discussed. Attention is paid to definition of key terms such as "propaganda", "manipulation", and the like, in the light of shifting nuances of different times and usages. The problem of arriving at a satisfactory definition of "truth" to compare or contrast with "propaganda" is one focal point of investigation. The values of an open society, as against those promoted by closed societies, also receive attention, account being taken of subtler as well as more obvious forms of censorship, and of external as well as internal attempts to influence or subvert public consciousness in a given society. (Also listed as Mass Communication 27.290.)

Prerequisite: An introductory course in philosophy or Second-year standing.

Day division: Lectures and discussion three hours a week.

R.R.A. Marlin

Philosophy 32.305

Modern Philosophy: 1800-

An examination of some major philosophical writers of the nineteenth and twentieth centuries: German idealism from Kant to Hegel; the anti-Hegelian philosophies of Marx, Kierkegaard, Schopenhauer and Nietzsche; American Pragmatism (James, Peirce and Dewey).

Prerequisite: An introductory course in philosophy or Second-year standing.

Day division: Lectures and discussion three hours a week.

J.A. Brook, B.I. Egyed

Philosophy 32.306★

Kant to Hegel

The first half of Philosophy 32.305: The development of German idealism from Kant to Hegel.

Prerequisite: An introductory course in philosophy or Second-year standing.

Day division, First term: Lectures and discussion three hours a week.

J.A. Brook

Philosophy 32.311★

Philosophy of Law: The Nature of Law

This course involves a consideration of the concept of law, and of those concepts which are commonly associated with it, viz. rules, obligations, authority, coercion, and force. (Also listed as Law 51.311★.)

Prerequisite: An introductory course in philosophy or Second-year standing.

Day division, First term: Lectures and discussion three hours a week.

P.J. Fitzgerald (Law)

Philosophy 32.312★

Philosophy of Law: The Logic of Law

This course examines legal reasoning and analyzes concepts of particular significance to the law. These include justice, rights and duties, liability, punishment, ownership and possession.

Prerequisite: An introductory course in philosophy or Second-year standing.

Day division, Second term: Lectures and discussion three hours a week.

P.J. Fitzgerald (Law)

Philosophy 32.320

Marxism

The aim of this course is to show how Marxism is both a continuation and a radical critique of the Western philosophical tradition. After a detailed examination of the nature of dialectical materialism, some traditional philosophical problems are discussed from a Marxist point of view. Such issues as the nature of man, the way he creates his environment, the historical forces which condition him and the nature of alienation are viewed through the writings of nineteenth century and contemporary Marxists.

Not offered 1982-83.

Philosophy 32.330

Social and Political Philosophy

An analysis of the concepts used to explain and justify social and political thinking or action: state, society, the common good, justice, rights and obligations, punishment and liberty, and a consideration of the moral basis of political obligation.

Prerequisite: An introductory course in philosophy or Second-year standing.

Summer Evening division.

B. Wand

Philosophy 32.332★

Issues in the Philosophy of Science

An introduction to the main currents of post-positivist philosophy of science. The main concepts discussed in the course include: truth, meaning, testability, theory ladenness, progress, induction, objectivity, rationality, explanation, and paradigms. An attempt is made to trace the use of these concepts and the various philosophical problems to which they give rise from early twentieth century positivism through the writings of Karl Popper and Thomas Kuhn to the writings of Paul Feyerabend, Imre Lakatos and Mary Hesse.

Prerequisite: An introductory course in philosophy or Second-year standing.

Students will not receive credit for both Philosophy 32.232★ and Philosophy 32.332★.

Not offered 1982-83.

Philosophy 32.333★

Science and the Structure of Society

An introduction to the ideas of the Frankfurt School, of Hermeneutics, and of Structuralism. The views of Horkheimer, Habermas, Ricoeur, Althusser and Foucault on the value of scientific discourse and the nature of the critical study of society are examined in some detail.

Prerequisite: An introductory course in philosophy or Second-year standing.

Students will not receive credit for both Philosophy 32.233★ and Philosophy 32.333★.

Day division, First term: Lectures and discussion three hours a week.

B.I. Egyed

Philosophy 32.335

Logic

An introduction to symbolic logic together with a discussion of some problems in the philosophy of logic.

Prerequisite: An introductory course in philosophy or permission of the department.

Day division: Lectures and discussion three hours a week.

J.W. Leyden

Philosophy 32.366★

Philosophies of Love

Philosophical theories of love are studied with emphasis on their implications for understanding human nature and developing moral ideals.

Recommended background: Philosophy 32.266.

Not offered 1982-83.

Philosophy 32.380

Moore, Russell, Wittgenstein

A brief account of the Idealism of Bradley sets the context for a study of the reactions of Moore and Russell. Their contributions to metaphysics, theory of knowledge and linguistic analysis are examined and compared with the early views of Wittgenstein. In the Second term there is a concentrated study of the later work of Wittgenstein. The approach is both interpretive and problem-oriented.

Prerequisites: Two courses in philosophy.

Day division: Lectures and discussion three hours a week.

J.W. Leyden

Philosophy 32.391★

Philosophical Problems

Topic to be chosen annually from the following: metaphysics-epistemology, metaphilosophy. This course is primarily intended for Major or Honours students in their Third year.

Not offered 1982-83.

Philosophy 32.399

Independent Study

Normally restricted to students with at least three courses in philosophy and with high standing in philosophy courses. The students submit topics for approval and present papers for grading.

■ **Fourth-Year Courses**

Philosophy 32.404★

Greek Philosophy

An intensive study of selected texts.

Prerequisite: Final-year Honours standing in a philosophy program or permission of the department.

Not offered 1982-83.

Philosophy 32.406★

Descartes

Prerequisite: Final-year Honours standing in a philosophy program or permission of the department.
Not offered 1982-83.

Philosophy 32.407★

Hume

An intensive study of selected texts.
Prerequisite: Final-year Honours standing in a philosophy program or permission of the department.
Not offered 1982-83.

Philosophy 32.408★

Kant

An intensive study of selected texts.
Prerequisite: Final-year Honours standing in a philosophy program or permission of the department.
Second term: Seminar two hours a week.
J.A. Brook

Philosophy 32.409★

Marx

Prerequisite: Final-year Honours standing in a philosophy program or permission of the department.
Not offered 1982-83.

Philosophy 32.411★

Action, Intention and Responsibility

Prerequisite: Final-year Honours standing in a philosophy program or permission of the department.
First term: Seminar two hours a week.
R.R.A. Marlin

Philosophy 32.416★

Medieval Philosophy

Prerequisite: Final-year Honours standing in a philosophy program or permission of the department.
Not offered 1982-83.

Philosophy 32.421★

Epistemology

Prerequisite: Final-year Honours standing in a philosophy program or permission of the department.
First term: Seminar two hours a week.
J.C.S. Wernham

Philosophy 32.431★

Philosophy of Logic

Prerequisite: Final-year Honours standing in a philosophy program or permission of the department.
Not offered 1982-83.

Philosophy 32.441★

Contemporary Moral or Political Philosophy

An intensive study of recent works in one or both of these areas.
Prerequisite: Final-year Honours standing in a philosophy program or permission of the department.
Second term: Seminar two hours a week.
M. Glass

Philosophy 32.461★

Philosophy of Religion

Prerequisite: Final-year Honours standing in a philosophy program or permission of the department.
Not offered 1982-83.

Philosophy 32.481★

Philosophy of Language

Prerequisite: Final-year Honours standing in a philosophy program or permission of the department.
Not offered 1982-83.

Philosophy 32.490

Tutorial

Philosophy 32.491★

Tutorial

Graduate Courses Open to Undergraduate Students

The following graduate course may with permission be taken by Honours and Combined Honours students in their final year.

Philosophy

32.545 Departmental Seminar

Department of Political Science

Officers of Instruction

Chairman

Robert J. Jackson

Assistant Chairman

G. Roseme

Supervisor of Graduate Studies

H. von Riekhoff

Assistant Supervisor of Graduate Studies

M.B. Dolan

Supervisor of Honours and Majors Studies

W.T. Darby

Professor Emeritus

Henry B. Mayo

Professors

Douglas G. Anglin
Bohdan R. Bociurkiw
Robert J. Jackson
Peyton V. Lyon
Kenneth D. McRae
Khayyam Z. Paltiel
T. Rakowska-Harmstone
Donald C. Rowat
Radoslav Selucky
V. Subramaniam
Harald von Riekhoff

Associate Professors

Robert E. Bedeski
Nguyen H. Chi
Michael B. Dolan
Jane Jenson
Frederic Kirk
David Kwavnick
Maureen A. Molot
Willard A. Mullins
Lynn K. Mytelka
Jon H. Pammett
Leo V. Panitch
George Roseme
Paul L. Rosen
John H. Sigler
Elliot L. Tepper
Brian W. Tomlin
Jill McCalla Vickers
Reginald A. Whitaker
Michael S. Whittington
Conrad J. Winn

Assistant Professors

Jon Alexander
David Bellamy
W. Thomas Darby
Linda Freeman

Charles Schuetz

Glen S. Williams

Lecturer

Kenneth D. Hart

General Information

Ottawa provides a wealth of resources, both in personnel and in research materials, for the student of government, politics, public administration and international relations. Undergraduates will be assisted in making the fullest use of these unique advantages of the national capital. The Political Science Department offers courses in the following fields of study: Canadian government and politics, comparative institutions and politics, public administration and public policy, international relations, political theory and methodology.

Students should note that it is possible to combine a Major or Honours in political science with a pattern of studies, such as urban studies, studies in developing areas, etc. Those wishing to do so should consult the department for a suggested outline of courses.

Major Programs

A Major in political science requires Political Science 47.100; one of 47.230, 47.231, or 47.270; and four or more additional courses in the department.

First-year students intending to enter a Major (or Honours) program in political science should note that they may take a 200-level course concurrently with Political Science 47.100.

A Combined Major, including political science, requires Political Science 47.100 and three or more additional courses.

Majors should take a number of courses in related social sciences. Final-year Majors with the required standing, may, with permission, be admitted to Fourth-year Honours courses. The entire program must be approved by the department.

Majors must obtain at least C- in Political Science 47.100 to enter Second year and must maintain an overall average of at least C- in their political science courses to continue into Third year. For examinations to raise grades, see p. 46.

Honours Programs

The Honours programs may be entered in the First year, or by transfer from Major programs, if sufficient standing has been obtained. Only students whose past record indicates the ability to meet the department's language requirement, and to obtain at least a B- in

the Honours Essay will be recommended for Fourth-year Honours. An Honours student may be approved for a Major degree at the end of the Third year if the requirements under the Major program have been completed. The following programs are available:

Honours in Political Science

For full Honours, twenty credits will be required, including at least nine credits in political science. The political science credits must comprise:

1. Political Science 47.100, 47.231, 47.270, and 47.498;
2. One full credit (or two half credits), chosen from: 47.200, 47.300★, 47.301★, 47.302★, 47.303★, 47.304★, 47.335★, 47.336★, 47.340, 47.366★, 47.400, 47.401, 47.402★, 47.404★, 47.406★, 47.407★, 47.408★, 47.409★, 47.467★;
3. One full credit (or two half credits) chosen from: 47.215, 47.260, 47.310, 47.312, 47.314★, 47.315, 47.316★, 47.317★, 47.320, 47.321, 47.322, 47.342★, 47.360★, 47.361★, 47.365★, 47.366★, 47.405, 47.412★, 47.413★, 47.414★, 47.415★, 47.420★, 47.421★, 47.422★, 47.460, 47.461★, 47.466★, 47.467★, 47.482★, 47.483★;
4. Three additional credits in political science of which the equivalent of one full credit must be a Fourth-year seminar.

5. *Language requirement:* The department requires Honours students to have a knowledge of French. This requirement may be satisfied in one of two ways:

(a) Successful completion of French 20.106★, 20.107, 20.108, or 20.109, or an equivalent course approved by the department. Students with a limited background in French should note that it may be necessary for them to take French 20.100 or 20.102 in order to be admitted to the above-listed courses.

(b) The department conducts language examinations twice each year (November and March). Successful completion of this examination at any time prior to Fourth year will satisfy the language requirement. *Fourth-year students are not eligible to take these examinations.* If the examination is attempted and failed, the student must then satisfy the language requirement by completing option (a) above.

Students from abroad, whose mother tongue is other than English, or students whose research interests require another language, may obtain permission from the Supervisor of Honours to substitute this language for French.

Candidates present a graduation essay on some topic involving independent investigation (Political Science 47.498); they may be examined orally on this essay and must receive at least B- in this course. They must select a minor field or fields, preferably in economics, history, law, philosophy, sociology or psychology.

Combined Honours

Students intending to enter a program combining political science with another discipline should, in their First year, take Political Science 47.100 and the introductory course in the other discipline. For Combined Honours at least six credits in political science will be required, including:

1. Political Science 47.100, 47.231, 47.270 or its equivalent; a Fourth-year seminar; 47.498 unless the Honours Essay is written in the other discipline of the Combined program;
2. The equivalent of two credits, chosen from requirements 2 and/or 3 listed for the full Honours program. The two credits may be chosen from one list; one of the two credits may be the Fourth-year seminar;
3. The language requirement as stated for Honours in political science must be completed.
4. The requirements as stated for Combined Honours in the other discipline of the Combined program must be met.

Combined Honours, Journalism and Political Science

Students may select a course pattern that will lead either to the degree of B.A. with Combined Honours in journalism and political science, in which case the Honours essay will be written for the Department of Political Science, or to the degree of B.J. with Combined Honours in Political Science, in which case the Honours essay will be written for the School of Journalism. Students in either program must complete twenty-one credits, and they must maintain a standing sufficiently high at all times to satisfy the standards of both the School of Journalism and the Department of Political Science. Please refer to the statements of standing on p. 198 (Journalism) and p. 97 (Arts and Social Sciences).

Course requirements are:

1. A minimum of six credits in political science including: 47.100, 47.231, 47.270 or its equivalent, 47.498 if the student is in the B.A. program, the equivalent of two credits chosen from requirements 2 and/or 3 listed for Honours in political science, the equivalent of one credit from the Fourth-year seminars offered.
2. The journalism courses normally required under the Honours Journalism program, including Journalism 28.100, 28.101★, 28.200, 28.220, 28.320, 28.321★, 28.351★, 28.421, and 28.498 if the student is in the B.J. program. Students should consult the School of Journalism on course patterns. Note: Journalism 28.220 and 28.320 are two-credit courses.
3. The language requirement as stated for Honours in political science must be completed.
4. An approved course in Canadian history. (Students who wish to practice journalism in another country may be advised to choose a different history course.)

Combined Honours in Political Science and Sociology

Students in this program are required to complete six credits in Political Science including Political Science 47.100, 47.231, a Fourth-year seminar, and 47.498 (if the Honours Essay is written in political science). In addition, the student must complete one of the following methodology sequences:

(a) in the Second year, Political Science 47.270; in the Third year, Sociology, 53.370; or

(b) in the Second year, Sociology-Anthropology 56.200★, in the Third year, Political Science 47.470. Political Science 47.470 may not be counted as the required Fourth-year seminar course in political science.

Students must also meet requirements 2, 3, and 4 as stated for Combined Honours in Political Science.

Honours and Combined Honours Standing

Students must maintain a standing sufficiently high at all times to satisfy the requirements of the Faculties of Arts and Social Sciences as stated on p. 97.

Graduate Program

The Department of Political Science offers studies leading to the degree of Master of Arts and to the degree of Doctor of Philosophy. For further details consult the Graduate Studies and Research Calendar.

Courses Offered

■ First Year

Political Science 47.100

Introduction to Political Science

An introduction to four areas of concern in the study of contemporary political issues and problems: political thought, focusing upon the clash of modern ideologies such as fascism, socialism, liberalism, communism and nationalism; comparative government, starting from the Canadian system, and including one other western democracy, a communist system and a developing country; international politics; and methods of enquiry.

Day and Evening divisions: Lectures and discussion three hours a week.

J. Alexander, R.E. Bedeski, B.R. Bociurkiw, J. Jenson, L.K. Mytelka, G. Roseme, V. Subramaniam, C.J. Winn

■ Second Year: Majors and Honours

Political Science 47.200

Canadian Government and Politics

A survey of the political process and political institutions in Canada.

Prerequisite: Political Science 47.100 or permission of

the department. Third-year students in another discipline will normally be permitted to take this course without having taken Political Science 47.100.

Day and Evening divisions: Lectures and discussion three hours a week.

D.J. Bellamy, D. Kwavnick, K.Z. Paltiel, L.V. Panitch

Political Science 47.215

Comparative Politics

An examination of concepts, theories and methods employed in the study of comparative politics, with particular emphasis on cross-national comparison of regimes and some of the major issues in the field.

Prerequisite: Political Science 47.100.

Day division: Lectures and discussion three hours a week.

R.J. Jackson

Political Science 47.230

History of Political Thought

A survey of some of the leading ideas about politics and society developed in the Western world. Evolving concepts of liberty, equality, justice, power, authority and sovereignty are considered in their historical context, from the ancient world to the nineteenth century. Among the political philosophers considered are Plato, Aristotle, Machiavelli, Hobbes, Locke, Rousseau and Marx.

Precludes additional credit for Political Science 47.231.

Prerequisites: Political Science 47.100 or permission of the department. Third-year students in another discipline may normally take this course without having taken Political Science 47.100.

Day and Evening divisions: Lectures and discussion three hours a week.

L. Freeman, W.T. Darby

Political Science 47.231

History of Political Thought

An intensive study of the development of Western political philosophy and related aspects of intellectual history from classical times to the end of the eighteenth century. Among the political philosophers considered are Plato, Aristotle, Machiavelli, Hobbes, Locke and Rousseau. (For Honours and graduate students in any discipline.)

Precludes additional credit for Political Science 47.230.

Prerequisite: Political Science 47.100 or permission of the department.

Day and Evening divisions: Lectures and discussion three hours a week.

K.D. McRae, W.A. Mullins, R. Selucky

Political Science 47.260

International Politics

An analysis of the structure and processes of the international system; the interactions of both state and non-state actors (such as multinational enterprises). Contemporary approaches (for example, simulations) to the systematic study of international phenomena

are illustrated by reference to current developments such as nuclear proliferation and the tensions between rich and poor nations.

Prerequisite: Political Science 47.100 or permission of the department.

Day and Evening divisions: Lectures and discussion three hours a week.

D.G. Anglin, E.L. Tepper

Political Science 47.270

Political Enquiry

An introduction to the elements of systematic political analysis. The goals of the course are to enable students to understand and to take part in empirical research. In addition, students have an opportunity to become proficient in computer analysis of social science data. The course covers modes of enquiry in the discipline, including survey research methods and their statistical background. The instructors assume that students will have done no previous work in mathematics, statistics or computer science.

Prerequisite: Political Science 47.100.

Day and Evening divisions: Lectures two hours a week, laboratory or discussion one hour a week.

N.H. Chi, J. Jenson

■ Third Year: Majors and Honours

Political Science 47.300★

Canadian Provincial Politics

A comparative examination of the nature of Canadian provincial politics. Topics include: political culture, history, party systems, electoral systems, and voting behaviour.

Prerequisite: Political Science 47.200 or permission of the department.

Evening division, First term: Lectures and discussion three hours a week.

Political Science 47.301★

Canadian Provincial Government and Intergovernmental Relations

A comparative examination of the institutions of provincial governments, with concentration on the executive and legislature. In addition, attention is focused on the structures and processes of intergovernmental relations, including federal-provincial conferences, selected issues, and provincial-municipal relations.

Prerequisite: Political Science 47.200 or permission of the department. Political Science 47.300★ is recommended.

Evening division, Second term: Lectures and discussion three hours a week.

Political Science 47.302★

Canadian Municipal Government

An examination of the nature and problems of Canadian municipal government, including metropolitan and regional government and provincial-municipal relations.

Prerequisites: Political Science 47.100 and preferably also 47.200, or completion of Second year in another discipline.

Day division, First term: Lectures and discussion three hours a week.

Political Science 47.303★

Canadian Urban Politics

An examination of the nature and problems of Canadian urban politics.

Prerequisite: Political Science 47.302★ or permission of the department.

Not offered 1982-83.

Political Science 47.304★

Political Parties and Elections in Canada

An examination of the evolution of the party system, the growth of major and minor party movements and the electoral process in Canada.

Prerequisite: Political Science 47.200 or a previous course in the political process.

Day division, Second term: Lectures and discussion three hours a week.

J. Jenson

Political Science 47.310

Government and Politics in Africa

The evolution and functioning of African political systems, with emphasis on recent developments in West Central and East Africa.

Prerequisite: Political Science 47.100.

Day division: Lectures and discussion three hours a week.

D.G. Anglin

Political Science 47.312

Government and Politics of East Asia

The evolution and functioning of the political systems of China, Japan and Korea.

Prerequisites: Political Science 47.100 and preferably 47.215.

Day division: Lectures and discussion three hours a week.

R.E. Bedeski

Political Science 47.313★

Women in Politics: A Comparative Perspective

An examination of the participation of women in politics, especially in developed democracies. Special emphasis is placed on the structural and cultural impediments to full participation in the Canadian context, using primary data.

Prerequisites: Political Science 47.100 and one of 47.200, 47.215 or 47.270.

Day division, First term: Lectures and discussion three hours a week.

J.M. Vickers

Political Science 47.314★

Eastern European Politics

A comparative examination of political institutions and processes in the Communist states of Eastern Europe.

Prerequisite: Political Science 47.100 and preferably 47.215.

Day division, Second term: Lectures and discussion three hours a week.

R. Selucky

Political Science 47.315

Government and Politics of South and South East Asia

This course on developing areas acquaints the student with the patterns of colonial history, emergent political regimes and problems of development and foreign policy in the countries from Pakistan through the Philippine Islands, with special emphasis on problems of political change.

Prerequisite: Political Science 47.100 and preferably 47.215.

Evening division: Lectures and discussion three hours a week.

E.L. Tepper

Political Science 47.316★

Revolution

An examination of theories of revolution from Aristotle through the present era. Students are encouraged to examine revolution as a concept, and as an empirical fact of central importance to our age.

Prerequisite: Political Science 47.215 or permission of the department.

Day division, First or Second term: Lectures and discussion three hours a week.

R.E. Bedeski

Political Science 47.317★

The Causes of War

A detailed examination of alternate theories of the causes of war. The course examines such alternate perspectives as biological, social and comparative historical approaches, and includes the results of peace research activities of the past two decades.

Prerequisite: Political Science 47.215 or permission of the department.

Day division, First term: Lectures and discussion three hours a week.

H. von Riekhoff

Political Science 47.318★

Women in Developing Politics: A Comparative Assessment

This course examines the status and role of women in developing countries and in socialist countries mobilized for social change, including case studies drawn from Africa, Asia and Latin America. It includes an examination of aspects of development theories from a feminist perspective.

Prerequisite: Political Science 47.215 or permission of the department.

Day division, Second term: Lectures and discussion three hours a week.

J.M. Vickers

Political Science 47.320

Soviet Government and Politics

A study of the environment and political culture of the Soviet political system; political socialization, communication and elite recruitment; the structure and functioning of the Communist Party and governmental institutions; policy making and implementation, capabilities of the Soviet political system.

Prerequisites: Political Science 47.100 and preferably 47.215, or History 24.260.

Day division: Lectures and discussion three hours a week.

B.R. Bociurkiw

Political Science 47.321

Government and Politics of Western Europe

A survey of the political processes and institutions in the democracies of Western Europe, with emphasis on Britain, France, Italy and the German Federal Republic.

Prerequisites: Political Science 47.100 and preferably 47.215.

Not offered 1982-83.

Political Science 47.322

Government and Politics of the United States

American political thought, constitutional development, and the governmental process.

Prerequisites: Political Science 47.100 and preferably 47.215.

Day division: Lectures and discussion three hours a week.

P.L. Rosen

Political Science 47.330★

Politics and Literature

A study of imaginative prose in which political ideas and/or political settings dominate. Literature as political communication, the impact of literature upon politics, the peculiar value of literature in the study of politics, its shortcomings.

Prerequisites: Political Science 47.100 and permission of the department.

Day division, Second term: Lectures and discussion three hours a week.

G. Roseme

Political Science 47.331★

Politics and Psychoanalytic Thought

An investigation and critique of the contribution of psychoanalytic thought to political and social theory. Emphasis is placed on the origin and function of culture, instinct modification, perversion, character and political order; the psychoanalytic ethic and the therapeutic state; the Freudian-Marxist dialectic and the critique of society.

Prerequisite: Political Science 47.230 or Psychology 49.261 or permission of the department.

Day division, Second term: Lectures and discussion three hours a week.

P.L. Rosen

Political Science 47.332★

East Asian Political Thought — China, Japan, and Korea

A seminar on Chinese political philosophy with special reference to historical and modern thought on the State. Japanese and Korean variants of the Chinese state are also discussed.

Prerequisite: Political Science 47.100 or permission of the department.

Day division, Second term: Lectures and discussion three hours a week.

N. Bamba

Political Science 47.333

Modern Political Thought and Ideologies

An analysis of leading political concepts and ideologies since 1800, including utilitarianism, liberalism, conservatism, socialism and fascism.

Day division: Lectures and discussion three hours a week.

W.A. Mullins

Political Science 47.335★

Canadian Political Ideas

An examination of the sources and development of Canadian political ideas. Conservatism, liberalism, socialism, radical and protest politics, nationalism and concepts of federalism are considered in their historical context, with major emphasis on the twentieth century and the contemporary conflict of political ideas. The relationship between ideas and political institutions and policies is a central focus of the course.

Prerequisite: Political Science 47.200 or permission of the department.

Not offered 1982-83.

Political Science 47.336★

Canadian Political Culture and Ideologies

An analysis of the elements of contemporary Canadian political culture, with special reference to the social bases of ideologies and to regional differences within Canada.

Prerequisite: Political Science 47.200.

Not offered 1982-83.

Political Science 47.340

Canadian Public Administration

A survey of the political and social impact of the federal public service in Canada, including the nature of bureaucracy, its role in policy making, and social and political control of the public service in Canada.

Prerequisite: Political Science 47.200 or permission of the department.

Day and Evening divisions: Lectures and discussion three hours a week.

D.J. Bellany, D.C. Rowat, V. Subramaniam

Political Science 47.342★

Comparative Public Bureaucracy

A comparative study of the historical evolution of bureaucracy in Western Europe under absolute

monarchy; the interaction of democracy and bureaucracy in Europe and North America; the transplanting of British and French bureaucratic institutions; and the significance of bureaucracy in developed and developing societies.

Prerequisite: Political Science 47.100.

Day division, Second term: Lectures and discussion three hours a week.

V. Subramaniam

Political Science 47.345★

Contemporary Public Policy Analysis

An examination of the factors which have led to the expansion of state activities in Canada and other liberal democracies, and a survey of the context and process of policy formation in such fields as social welfare, regional integration, foreign investment and trade, and the regulation of labour and capital.

Prerequisite: Political Science 47.100 or permission of the department.

Not offered 1982-83.

Political Science 47.360★

International Institutions

Origins, structure and functioning of international institutions with emphasis on the United Nations as well as regional organizations. Topics include peace and security, international aid and development, human rights and the control of global resources.

Prerequisite: Political Science 47.260 or permission of the department.

Evening division, First term: Lectures and discussion three hours a week.

Political Science 47.361★

Theories of International Politics

A survey of theoretical approaches to the study of international politics including an examination of the major concepts used for analysis and explanation in the field.

Prerequisite: Political Science 47.260 or permission of the department.

Day division, Second term: Lectures and discussion three hours a week.

Political Science 47.365★

Comparative Study of Foreign Policy

An examination of the utility of comparative analysis in the study of the objectives, strategies and decision-making processes involved in the foreign policies of states.

Prerequisite: Political Science 47.260 or permission of the department.

Not offered 1982-83.

Political Science 47.366★

Canadian Foreign Policy

An examination of the traditions, domestic influences, objectives, capabilities, and decision-making processes, and analysis of selected contemporary issues.

Prerequisite: Political Science 47.260 or permission of the department.

Evening division, Second term: Lectures and discussion three hours a week.

■ Fourth Year: Honours and Graduate

Third-year Honours students, and Majors with equivalent standing may, with permission of the department, be admitted to these seminars.

Political Science 47.400

Topics In Canadian Government and Politics

In 1982-83 two separate seminars are offered.

Section A: Political Economy of Canada. An examination of selected issues in Canadian political economy including the role of the state in the Canadian economy, the political aspects of foreign ownership and economic structure and political change.

M.A. Molot

Section B: Canadian Political Institutions. A seminar on selected topics on institutions of Canadian Government at the federal level.

D. Kwavnick

Section C: Canadian Political Behaviour. A seminar on voting, public opinion, political violence, socialization and other aspects of political behaviour in Canada. The course also examines religion, class and region as determinants of political cleavage.

Not offered 1982-83.

Prerequisite: Political Science 47.200.

Day division: Seminars three hours a week.

Political Science 47.401

Policy Making In Canada

A seminar which critically examines relevant policy patterns, structures and processes from a number of theoretical perspectives, in relation to the Canadian political economy and to selected areas of contemporary Canadian public policy (such as energy, social welfare, foreign investment, public expenditure and regulation).

Prerequisites: Political Science 47.200 and 47.340 or permission of the department.

Day and Evening divisions: Seminar three hours a week.

C.J. Winn

Political Science 47.402★

Policy Seminar: Problems of Northern Development

A research seminar that examines the issues, the policy processes and the problems of policy implementation in the political and economic development of Canada's northern territories.

Prerequisites: Political Science 47.200 and 47.340 or permission of the department.

Not offered 1982-83.

Political Science 47.403★

Politics and the Media

A seminar on the role of the mass media in the Canadian political system.

Prerequisite: Political Science 47.200 or permission of the department.

Day division, Second term: Seminar three hours a week.

C.J. Winn

Political Science 47.404★

Interest Groups In Canadian Politics

A seminar on the role of organized groups in the political process with special reference to Canada.

Prerequisite: Political Science 47.200 or permission of the department.

Day division, First term: Seminar three hours a week.

K.Z. Paltiel

Political Science 47.405

Federalism

A seminar on the theory and practice of divided political authority. The primary focus is the Canadian federal structure and its current crisis. Using a theme-oriented approach, the methodology is comparative, with relevant aspects drawn from the experience of other federations and quasi-federations as well as a study of the sovereignty-association model.

Prerequisite: Political Science 47.200 or permission of the department.

Not offered 1982-83.

Political Science 47.406★

Legislative Process In Canada

A seminar on the role of Parliament and of the individual M.P. in terms of policy making, representation and the passage of legislation.

Prerequisite: Political Science 47.200 or permission of the department.

Not offered 1982-83.

Political Science 47.407★

The Politics of Law Enforcement in Canada

A research seminar focusing on major issues in the area of law enforcement policy, police administration and the criminal justice system in Canada. Particular emphasis will be given to the role of law enforcement agencies as integral institutions of the Canadian political system.

Prerequisite: Political Science 47.200 or permission of the department. Prerequisite may be waived for students with practical experience in law enforcement.

Not offered 1982-83.

Political Science 47.408★

National Security and Intelligence In the Modern State

A research seminar dealing with the state's response to foreign espionage, alleged subversion, terrorism, and counterintelligence in general but with specific reference to the dilemmas of national security operations in liberal societies. Major focus is on the Canadian experience, but with extensive use of materials chronicling the practices of KGB, CIA, BIS, ASIO, MOSSAD, etc.

Prerequisite: Political Science 47.200 or 47.260 or permission of the department.

Not offered 1982-83.

Political Science 47.409★

French Canadian Politics

A seminar on the politics, and institutions of French Canada including social and political philosophy and nationalism.

Prerequisites: Political Science 47.200 and a reading knowledge of French.

Day division, First term: Seminar three hours a week.

D. Kwavnick

Political Science 47.412★

Society and Politics In Liberal Democracies

A seminar that examines the social structure and politics of advanced capitalist societies, including the historical and contemporary relationship between social classes — groupings, political parties and interest groups.

Prerequisite: Political Science 47.200 or 47.215 or permission of the department.

Day division, First term: Seminar three hours a week.

L.V. Panitch

Political Science 47.413★

The State in Advanced Capitalist Societies

A seminar that undertakes comparative analysis of the structure and role of the state in capitalist societies. Specific topics may include state economic intervention, corporatism, welfare state activities, and neo-conservatism.

Prerequisite: Political Science 47.200 or 47.215 or permission of the department.

Day division, Second term: Seminar three hours a week.

L.V. Panitch

Political Science 47.414★

Theory and Practice in Third World Development

An examination of various theoretical approaches to the analysis of development and underdevelopment and their application to selected countries of Africa, Asia, the Caribbean, Latin America or the Middle East.

Prerequisite: Political Science 47.215 or 47.260 or permission of the department.

Day division, First term: Seminar three hours a week.

L. Freeman

Political Science 47.415★

Selected Problems In Third-World Development

A research seminar dealing cross-nationally with specific problems and topics in development studies. Such topics might include clientelism, class, corruption, the role of foreign capital, the state or the military.

Prerequisite: Political Science 47.215 or 47.260 or permission of the department.

Day division, Second term: Seminar three hours a week.

L. Freeman

Political Science 47.420★

Policy Making in the United States

A seminar on conflict and co-operation in the United States legislative and executive/bureaucratic arenas; this course also treats overlapping struggles over policy initiative, innovation and planning. Special emphases are determined by student needs and interests.

Prerequisites: Political Science 47.100 and 47.322 or permission of the department.

Day division, First term: Seminar three hours a week.

J. Alexander

Political Science 47.421★

Politics of Influence in the United States

A seminar on parties, interest groups, coalitions, movement and other significant influences upon who gets what, when, how in the United States. Other topics include elections, democratic accountability and political uses of mass media. Special emphases are determined by student needs and interests.

Prerequisites: Political Science 47.100 and 47.322 or permission of the department.

Day division, Second term: Seminar three hours a week.

P.L. Rosen

Political Science 47.422★

Constitutional Politics

A seminar on the political character of leading western constitutions, with special emphasis on judicial politics and judicial policy-making in the United States; consideration will also be given to developments in Canada, Britain and France.

Prerequisites: Political Science 47.100 and 47.322 or permission of the department.

Not offered 1982-83.

Political Science 47.430★

Concepts of the State

A critical survey of concepts of the state from Hegel to the present with emphasis on the dichotomy between the political and civil society, as well as on an analysis of class nature and regulatory role of the state in modern societies.

Prerequisite: Political Science 47.230 or 47.333 or permission of the department.

Day division, First term: Seminar three hours a week.

P.L. Rosen

Political Science 47.431★

Marxist Thought

An examination of Marxism with special emphasis on Marx and Engels, and including writings from all periods of their work.

Prerequisite: Political Science 47.230, 47.231 or 47.333 or permission of the department.

Day division, Second term: Seminar three hours a week.

R. Selucky

Political Science 47.432★

Contemporary Marxism

An examination of all relevant interpretations of Marx's theory including evolutionary socialism, Leninism, Trotskyism, Stalinism, Maoism and the main schools of contemporary revisionism.

Prerequisite: Political Science 47.431★.

Not offered 1982-83.

Political Science 47.435

Contemporary Political Theory

Recent work in political theory, stressing major approaches to the understanding of contemporary political life. This seminar includes approaches such as historicism, the sociology of knowledge, positivism, phenomenology, critical theory, existentialism, neo-classicism. Works by such thinkers as Gramsci, Mannheim, Popper, Strauss, Cassirer, Habermas, Sartre, and Voegelin are discussed.

Prerequisite: Political Science 47.230, 47.231 or permission of the department.

Day division: Seminar three hours a week.

W.T. Darby

Political Science 47.446★

Theories of Public Administration

A seminar on the theories of bureaucracy, organization, and comparison.

Evening division, Second term: Seminar three hours a week.

D.C. Rowat

Political Science 47.447★

Decision Theories and Policy Studies

This course covers decision making and policy studies in a non-mathematical way from three complementary angles: basic philosophy, psychology and theory of individual and group decision making, and overall policy analysis as pursued by Vickers, Dror, and others, with a brief look at tools of decision making.

Evening division, First term: Seminar three hours a week.

V. Subramaniam

Political Science 47.448

Public Organizations: Theory and Practice

An examination of the major schools of organizational theory and behaviour as approaches for understanding the nature of public organizations. In the Second term students prepare research papers on particular public agencies.

Prerequisite: Political Science 47.340. Honours students in the School of Public Administration may take this course concurrently with Political Science 47.340.

Day division: Seminar three hours a week.

Political Science 47.460

Analysis of International Politics

Some principal issues in international relations; theory building, evaluation of concepts, research design, philosophy of science criteria and policy relevance in ongoing research in international relations theory.

Prerequisite: Political Science 47.260 or permission of the department.

Day division: Seminar three hours a week.

M.B. Dolan, B.W. Tomlin

Political Science 47.461★

Soviet Foreign Policy

An examination of the foreign policy of the Soviet Union, with special emphasis on trends since World War II and on the period of détente.

Prerequisites: Political Science 47.260 and 47.320 or permission of the department.

Not offered 1982-83.

Political Science 47.466★

American Foreign Policy

A seminar on sources, trends and conflicting interpretations of the international roles of the United States since World War II. Foreign policy machinery and processes are assessed in terms of the relative importance of perceptions, ideology, self-interest, and domestic and foreign pressures. Special emphases are determined by the needs and interests of students.

Prerequisite: Political Science 47.260.

Day division, Second term: Seminar three hours a week.

J. Alexander

Political Science 47.467★

International Politics of North America

An examination of relations among states in North America and with other sectors in the international system. Emphasis will be placed on Canada-United States relations, with subsidiary attention to Mexico. The theme of the seminar will vary from year to year.

Prerequisite: Political Science 47.260 or permission of the department.

Not offered 1982-83.

Political Science 47.470

Political Research Design and Data Analysis

The framing of quantitative research problems, including hypothesis formation and testing, application of models, sampling, scaling techniques, and computer and data processing techniques. Specific application will be made to such fields as voting, legislative, judicial and administrative behaviour.

Prerequisite: Permission of the department.

Not offered 1982-83.

Political Science 47.482★

International Politics of Africa

The interactions of African states within the African subsystem and with other sectors in the international system. Each year the seminar will focus on a particular theme.

Prerequisite: Political Science 47.260 or 47.310 or permission of the department.

Evening division, First term: Seminar three hours a week.

D.G. Anglin

Political Science 47.483★

Foreign Policies of Major East Asian Powers

The foreign policies of the East Asian powers, with special attention to China and Japan; an analysis of the domestic sources of policy, capabilities, interests, decision-making processes and foreign relations.

Prerequisite: Political Science 47.260 or 47.312 or permission of the department.

Day division, Second term: Seminar three hours a week.

Political Science 47.490

Tutorial in a Selected Field

Tutorials or reading courses on selected topics may be arranged with the permission of the department and agreement of the instructor.

Day division: Tutorial hours arranged.

Political Science 47.491★

Tutorial in a Selected Field

Tutorials or reading courses on selected topics may be arranged with the permission of the department and agreement of the instructor.

Day division, First term: Tutorial hours arranged.

Political Science 47.492★

Tutorial in a Selected Field

Tutorials or reading courses on selected topics may be arranged with the permission of the department and agreement of the instructor.

Day division, Second term: Tutorial hours arranged.

Political Science 47.498

Honours Graduation Essay

Day division: Tutorial hours arranged.

■ **Graduate Courses**

Fourth-year Honours students may, with permission of the department, be admitted to the following 500-level Political Science seminars, which are more fully described in the Graduate Studies and Research Calendar:

Political Science

- 47.500★ Canadian Local Government and Politics
- 47.501★ Canadian Provincial Government and Politics
- 47.502★ Comparative Local Government
- 47.503★ Political Parties in Canada
- 47.505 Comparative Government
- 47.506★ Problems of Canadian Government I
- 47.507★ Problems of Canadian Government II
- 47.508★ The Politics of Energy and the Environment
- 47.509★ Canadian Political Economy
- 47.510 The Political Process in Canada
- 47.511★ Canadian Federalism
- 47.514★ Comparative Communist Politics, Theory and Practice
- 47.515★ Comparative Communist Politics, Selected Aspects
- 47.516★ Selected Problems in Soviet Politics

- 47.517★ Selected Problems in African Politics
- 47.518★ State, Revolution, and Reform in East Asia
- 47.520★ Nationalism
- 47.521★ Politics in Plural Societies
- 47.525★ Problems in American Government I
- 47.526★ Problems in American Government II
- 47.530 Political Theory
- 47.531★ Modern Political Culture and Ideology
- 47.532★ Democratic Theories
- 47.533★ Enquiries in Political Philosophy
- 47.534★ Analytical Political Theory
- 47.535 The Canadian and American Political Traditions
- 47.540 Canadian Public Administration and Policy Analysis
- 47.544★ Public Administration in Developed Western Countries
- 47.545★ Public Administration in Developing Countries
- 47.548★ Research Seminar in Public Administration I
- 47.549★ Research Seminar in Public Administration II
- 47.550 Problems in Western European Politics
- 47.560 Theory and Research International Politics
- 47.561★ Analysis of Canadian Foreign Policy
- 47.562★ Formulation of Canadian Foreign Policy
- 47.570★ Basic Research Methods
- 47.571★ Research Design
- 47.572★ Applied Research Methods
- 47.573★ Advanced Research Methods
- 47.581★ Foreign Policies of African States
- 47.585★ Foreign Policy Analysis
- 47.586★ Strategy
- 47.587★ Analysis of International Organization
- 47.588★ International Political Economy
- 47.589★ Problems in International Politics

Related Courses

Subject to *prior* approval by the department, a student in the Honours or Major program may use one course in a related discipline as a political science credit. This permission will be granted only if the content of the transfer course is very closely related to political science and if the Political Science Department does not itself offer a comparable course. Students in the Combined Major or Honours programs may not use related courses as political science credits.

Courses Planned for Summer School and Evening Division

A selection of courses will normally be offered in both Day and Evening divisions in the Summer. In the Winter session Political Science 47.100, 47.200, 47.230/231, 47.260, and 47.270 will normally be offered in both Day and Evening divisions. In addition, a number of 300 and 400-level courses will be scheduled in the Evening division each year. Specific course offerings will depend on faculty availability and student interest and demand.

Department of Psychology

Officers of Instruction

Chairman

W.G. Webster

Chairman, Graduate Committee

R. Hoffmann

Chairman, Undergraduate Committee

W.E. Walther

Undergraduate Advisers

J.F. Campbell

W.L. Croll

P.D. McCormack

W.E. Walther

Professors

P.A. Fried

R.M. Knights

A.B. Laver

M.E. Marshall

P.D. McCormack

D.C. McIntyre

B.A. Pappas

T.J. Ryan

N. Spanos

L.H. Strickland

T.N. Tombaugh

R.A. Wendt

D.W. Zimmerman

Associate Professors

D.A. Andrews

H. Anisman

D.K. Bernhardt

J.F. Campbell

F. Cherry

W.L. Croll

R.F. Dillon

M.N. Donald

H.B. Ferguson

R.F. Hoffmann

R.D. Hoge

W.D. Jones

J.B. Kelly

B. Little

A. Moffitt

J. Partington

W.M. Petrusic

W. Thorngate

J. Tombaugh

W.E. Walther

W.G. Webster

R.B. Wells

Assistant Professors

E.J. Burwell

D.C.S. Roberts

B.W. Tansley

NSERC Research Fellow

R. Zarcharko

Adjunct Professors

R. Corbin, *Bell Canada*

J. Goodman, *Children's Hospital of Eastern Ontario*

P. Firestone, *University of Ottawa*

R. Flewelling, *Ottawa Board of Education*

D. Peters, *University of Ottawa*

R. Trites, *Royal Ottawa Hospital*

F.R. Wake

Research Associates

W.B. Cowan, *National Research Council of Canada*

D.C. Rice, *Health and Welfare Canada*

E. Shershen, *Ottawa Board of Education*

A. Smith, *Children's Hospital of Eastern Ontario*

T.E. Whalen, *Department of Communications*

General Information

Programs Offered

The Department of Psychology offers three different undergraduate programs, two in the Faculty of Social Sciences and one in the Faculty of Science. The programs in the Faculty of Social Sciences are the Major B.A. program in psychology (a minimum of fifteen full-course credits after Senior Matriculation) and the Honours B.A. program in psychology (a minimum of twenty full-course credits after Senior Matriculation). In the Faculty of Science the department offers an Honours program in psychology leading to the Honours B.Sc.

The Honours programs are designed for students intending to do graduate work in psychology. It has been found that students who do not have at least a B average have little chance of being admitted to graduate schools in psychology and have difficulty completing the Honours thesis.

For any degree in psychology it is recommended that the equivalent of Grade 13 Mathematics and English be included in the student's high school program, and that prospective Psychology students also include Mathematics 69.107★ and either 69.117★ or 69.127★ in their university program. These courses should be taken during First year or as soon thereafter as is feasible.

Course Requirements

Psychology 49.100 is required of all students wishing to take further courses in the department. The following are basic "core" courses: Psychology 49.200★, 49.205★ (or 49.305), 49.210★, 49.220★, 49.250★, 49.260★, 49.270★, and 49.300★ (or 49.301★ or 49.302★ or 49.303★). In most cases there are more specialized "branching" courses following upon these basic courses.

There is little distinction made between Second and Third year courses in the department. (Many 200-level courses are taken by students in the Third year and some 300-level courses are taken in the Second.)

All courses from outside the Faculties of Arts, Science and Social Sciences to be offered for credit towards graduation in psychology degree programs must meet with departmental approval prior to the time of registration. In the credits counted towards the degree, no student may offer standing in more than seven credits below the 200 level (including Psychology 49.100) in the Major program or in the B.Sc. Honours program, nor more than nine such courses in the B.A. Honours program.

Major or Honours students in the B.A. Program in Psychology may, if they wish, offer Computer Science 95.101★ (p. 72) as one of their optional half credits in psychology (but not to replace any of the specified psychology courses). Students wishing to take advantage of this option should notify the Psychology department undergraduate office within two months of registration in the course.

Grade-Point Average

The Department of Psychology normally calculates grade-point averages on the basis of all psychology courses taken at Carleton in which standing is offered for the purposes of graduation. The department does not accept the transfer of letter grades from other universities, excepting courses taken under the terms of reciprocal agreements (see p. 93), although appropriate credit will be granted for acceptable courses taken elsewhere.

Part-time Studies

While students may enrol as part-time students in the B.A. programs in the psychology department, they should be aware of the following:

1. the faculty requirements limiting to seven years the time between completion of the First year requirements and graduation;
2. the impossibility of completing the required Honours courses in the Evening division.

Major Program

This alternative is intended for the student who is not planning a career as a psychologist, but who wishes a liberal arts education with several courses in psychology.

The requirement for a Major in psychology is six course credits in psychology and the maximum allowable is seven psychology course credits; that is, all students must offer standing in at least eight non-psychology option credits in their total of fifteen required for the degree.

Students who decide to train for careers as psychologists are advised to transfer to the Honours program not later than the end of the Second year. Students who are considering this possibility should choose courses that are required for Honours psychology students in the Second year.

The departmental requirements for a Major in psychology are:

1. Psychology 49.100;
2. five of Psychology 49.200★, 49.205★, 49.210★, 49.220★, 49.250★, 49.260★, 49.270★, 49.300★, 49.301★, or 49.302★ or 49.303★ (only one of the latter four courses may be credited towards this requirement);
3. two and one-half additional course credits in psychology;
4. at least one full credit in each of two departments or interdisciplinary areas outside of the Faculty of Social Sciences;
5. a minimum grade-point-average of 4.0 (C-) in all psychology courses taken at Carleton.

Notes:

Psychology 49.305 may be substituted for 49.205★ in 2, in which case only two additional course credits in psychology are required in 3.

Students who transfer into the Fourth year of the Honours program who do not have credits in statistics and experimental psychology will not be able to complete the requirements for the degree in one year.

Honours students who are considering reverting to the Major program should not include more than seven psychology credits in the first three years.

Combined Major

The departmental requirements for a Major program combining psychology with another discipline are the same as for a Major, with the exception that, under 3 above, only one and one-half additional course credits in psychology are required, for a minimum offering of five course credits in psychology. The maximum remains at seven course credits. Note that requirements 4 and 5 above also apply to Combined Majors.

Honours Programs

To teach psychology at a university, to practise psychology as a profession, or to conduct independent psychological research, a graduate degree (usually the Ph.D.) is the customary requirement. Several provinces, including Ontario, and many states have laws which require, in effect, that individuals representing themselves as psychologists must have received a Ph.D. in psychological studies.

The Honours programs in psychology are designed to give students who are preparing for graduate studies in psychology an opportunity to learn and evaluate the

foundations of the science. They provide adequate preparation for graduate studies leading to a career in psychology, whatever the student's area of interest.

B.A. with Honours in Psychology

The candidate for a B.A. with Honours in psychology must offer standing at the First-year level in the Faculty of Social Sciences and nine credits in psychology courses, with remaining courses from psychology or other disciplines (providing not more than twelve psychology credits are offered for the degree).

The departmental requirements for Honours psychology are:

1. Psychology 49.100;
2. all of Psychology 49.210★, 49.220★, 49.250★, 49.260★ and 49.270★;
3. one of Psychology 49.300★, 49.301★, 49.302★ or 49.303★;
4. Psychology 49.305;
5. Psychology 49.200★, and one of 49.201★, 49.202★, 49.203★, 49.204★, or 49.308;
6. one of the following Honours Seminar sequences: 49.315★ and 49.316★ (Social); 49.325 (Physiological); 49.345★ and 49.346★ (Community); 49.355★ and 49.356★ (Developmental); 49.365★ and either 49.261★ or 49.262★ (Personality); 49.375★ and 49.376★ (Learning);
7. Psychology 49.498;
8. additional course credits in psychology to a total of nine credits;
9. at least one full credit in each of two departments or interdisciplinary areas outside of the Faculty of Social Sciences;
10. a minimum grade point average of 6.5 (C+ — B-) in all psychology courses taken at Carleton.

Notes:

The eleven optional credits may be taken in any approved discipline provided that requirement 9 above is met, and:

1. The total number of psychology credits is not more than twelve;
2. A total of eleven credits are above the 100 level;
3. All courses from outside the Faculties of Arts, Science and Social Sciences meet with departmental approval.

A student in Honours may transfer, on request, to the Major program at any time and graduate at the end of the third year of studies with a B.A. provided the requirements for the three year Major program are met. Honours students who are considering reverting to the Major program should not include more than seven psychology credits in the first three years.

Recommended Sequence for B.A. Honours

First Year

Psychology 49.100.

Second Year

1. Psychology 49.200★ and four of: Psychology 49.210★, 49.220★, 49.250★, 49.260★, 49.270★;

2 one half credit in Psychology (either the remaining core course listed in 1, or a Psychology option).

Third Year

1. Psychology 49.305;

2. an Honours Seminar sequence: Psychology 49.315★, 49.316★; 49.325; 49.345★, 49.346★; 49.355★, 49.356★; 49.365★ and either 49.261★ or 49.262★; 49.375★, 49.376★;

3. one of: Psychology 49.300★, 49.301★, 49.302★ or 49.303★;

4. one of: Psychology 49.201★, 49.202★, 49.203★, 49.204★ or 49.308.

An Honours student may take one of Psychology 49.201★, 49.202★, 49.203★, 49.204★, or 49.308 in Second year if the prerequisites are met and such a program choice is approved.

Fourth Year

1. Psychology 49.498;

2. one additional credit in Psychology.

In addition to the required Honours Seminar sequence in the Third year, Honours students should consider taking another (different) Honours Seminar sequence (or half thereof) in the Fourth year.

Combined Honours

With the exceptions listed below, students combining psychology with any other discipline must meet all requirements for the B.A. with Honours in Psychology listed above with the exception of requirement 8. That is, they must offer eight credits in Psychology including 49.498.

Exceptions are as follows:

1. Combined Honours in psychology and any of linguistics, mathematics or philosophy: Seven credits in psychology must be offered. All requirements listed for the B.A. with Honours in Psychology apply with the exception of requirement 8. The student need offer only *two credits* from requirements 2 and 3.

2. Combined Honours in psychology and any of anthropology, sociology or economics: Students must declare an area of research concentration at the time of application for the degree program. If the choice is psychology, requirements are as listed for linguistics, mathematics or philosophy. When psychology is not

the area of research concentration, the requirements are as for the B.A. with Honours in Psychology except that requirements 4, 7 and 8 are waived, and the student need only offer seven psychology credits.

3. Combined Honours in psychology and law: Students must offer eight credits in psychology including all requirements listed for the Honours B.A. in Psychology except requirements 8. They may, however, choose to offer Law 51.498, Honours Essay in place of Psychology 49.498. In this case, they must offer Psychology 49.490★ or 49.492★ (Directed Studies), and an additional half credit in psychology.

B.Sc. with Honours in Psychology

Note:

B.Sc. Honours students are urged to consult the calendar section on general regulations of the Science Faculty, pp. 363-371.

First Year

1. Mathematics 69.107★ and 69.117★ or 69.127★ (or equivalent prerequisites for 69.250 or for 69.217★ and 69.257★);

2. two of Biology 61.100 or 61.101, Chemistry 65.100, Physics 75.100 or 75.105;

3. Psychology 49.100 as the social science elective;

4. one optional credit from science, social sciences or arts.

Required courses beyond First year, and the sequence in which it is strongly suggested they be taken, are as follows:

Second Year

1. Psychology 49.200★, 49.220★, 49.250★ and 49.270★;

2. Mathematics 69.250 (or 69.217★ and 69.257★ for students planning to take further courses in mathematics);

3. one credit from arts or social sciences other than psychology;

4. one optional credit.

Note:

Students who wish to substitute Psychology 49.305 in 2 must offer in 4 a course above the First-year level in biology, mathematics, chemistry or physics chosen with the approval of the Department of Psychology.

Third Year

1. one Honours Seminar sequence credit (Psychology 49.325, 49.355★ and 49.356★, or 49.375★ and 49.376★);

2. one of Psychology 49.201★, 49.202★ or 49.204★ and one of Psychology 49.300★, 49.301★, 49.302★ or 49.303★;

3. one optional credit in psychology;

4. one credit in arts or social sciences other than psychology;

5. one credit above the First-year level in biology, mathematics, chemistry or physics;

Fourth Year

1. Psychology 49.498;

2. one credit in Psychology chosen from the following science continuation courses: Psychology 49.221★, 49.222★, 49.251★, 49.252★, 49.255★, 49.272★, 49.321★, 49.327★, 49.330★, 49.331★, 49.380★;

3. one optional credit in psychology;

4. one credit above the First-year level in biology, mathematics, chemistry or physics;

5. one optional credit.

Criminology and Corrections Concentration

For details see p. 129.

Graduate Program

The department of Psychology offers studies leading to the degree of Master of Arts and to the degree of Doctor of Philosophy. For further details consult the Graduate Studies and Research Calendar.

Courses Offered

Notes:

1. ★ indicates a half-credit course.

2. Many of the branching courses have limited enrolment. Pre-registration is therefore strongly recommended.

3. Many half courses are not open after the first week of registration. Registration in Second term half courses should normally be completed during Fall registration.

Psychology 49.100

Introductory Psychology

The course provides a foundation for the scientific understanding of human and animal behaviour. Both biological and social science approaches are considered. Day and Evening divisions: Lecture three hours a week.

Psychology 49.200★

Introduction to Psychological Research

An introduction to the various research methodologies employed within contemporary psychology. Topics covered may include experimental, observational, case study and archival techniques.

Prerequisite: Psychology 49.100.

Day and Evening divisions: Lecture three hours a week.

Psychology 49.201★

Research Methods In Psychology of Learning

A survey of methodological issues in the psychology of learning. The focus is on either human or animal learning. Independent projects are assigned.

Prerequisites: Psychology 49.200★ and 49.270★.

Open only to Honours students in psychology. Limited enrolment.

Day division: Lecture three hours, laboratory three hours a week.

Psychology 49.202★

Research Methods In Developmental Psychology

A survey of methodological issues in developmental psychology. Independent projects are assigned.

Prerequisites: Psychology 49.200★ and 49.250★.

Open only to Honours students in psychology. Limited enrolment.

Day division: Lecture/laboratory a minimum of six hours a week.

Psychology 49.203★

Research Methods in Social Psychology

A survey of methodological issues within social psychology. Independent projects are assigned.

Prerequisites: Psychology 49.200★ and 49.210★.

Open only to Honours students in psychology. Limited enrolment.

Day division: Lectures three hours a week, laboratory three hours a week.

Psychology 49.204★

Research Methods In Physiological Psychology

A survey of methodological issues in physiological psychology. Emphasis is upon the study of experimental paradigms commonly used in physiological psychology.

Prerequisites: Psychology 49.200★ and 49.220★.

Intended for Honours students in psychology. (Others must have permission of the department.) Limited enrolment.

Day division: Laboratory three hours a week.

Psychology 49.205★

Introduction to Psychological Statistics

Basic properties of descriptive statistics, the logic involved in the traditional hypothesis testing approach, and a variety of logical fallacies utilized in generating incorrect conclusions are examined. In particular, students are trained to recognize distorted results and conclusions unwarranted on the basis of empirical

results. In addition, the impact of traditional hypothesis testing upon psychological research is examined in relation to its limitations and misuses. The emphasis of the course is upon logic and evaluation rather than techniques *per se*.

Precludes additional credit for Mathematics 69.257★

Prerequisite: Psychology 49.100.

Day and Evening divisions: Lecture three hours a week.

Psychology 49.210★

Introduction to Social Psychology

Introduction to contemporary theory and research in social psychology. Areas covered include attitude structure and change, small groups and social learning. (Students who wish to substitute Sociology 53.210 for Psychology 49.210★ should consult their psychology department adviser. Students may not offer both Sociology 53.210 and Psychology 49.210★ for credit.)

Prerequisite: Psychology 49.100.

Day and Evening divisions: Lecture three hours a week.

Psychology 49.211★

Social Problems

An analysis of one or more social problems from the point of view of social psychology. The problems studied vary from year to year and may include such topics as invasion of privacy, the challenge of leisure, the quality of urban life and work satisfaction.

Prerequisite: Psychology 49.210★. Limited enrolment.

Day division: Lecture three hours a week.

Psychology 49.212★

Attitudes

Theory and research in attitude structure and change, attitude development and the relationships between attitudes and behaviour. Some problems in attitude measurement are considered.

Prerequisite: Psychology 49.210★. Limited enrolment. Not offered 1982-83.

Psychology 49.213★

Small Groups

A survey of small group theory and research. Areas covered include leadership and group problem solving.

Prerequisite: Psychology 49.210★. Limited enrolment.

Evening division: Lecture three hours a week.

Psychology 49.214★

Social Perception

Examination of theory and research related to determinants, consequences and models of a person's perception of people and other socially relevant objects.

Prerequisite: Psychology 49.210★. Limited enrolment.

Not offered 1982-83.

Psychology 49.220★

Biological Foundations of Behaviour

A general introduction to the biological basis of behaviour with particular reference to biological mechanisms associated with sensory and perceptual processes, motivation, emotion, learning and cognition. Prerequisite: Psychology 49.100★.

Day and Evening divisions: Lecture three hours a week.

Psychology 49.221★

Comparative Psychology

An introduction to the development of behavioural capacity from unicellular organisms to man.

Prerequisite: Psychology 49.220★.

Evening division: Lecture three hours a week.

Psychology 49.222★

Sensory Psychology

The physiological basis of sensation. Topics include sensory mechanisms, neuropsychological bases of perception and psychological phenomena encountered in the various senses.

Prerequisite: Psychology 49.220★.

Day division: Lecture three hours a week.

Psychology 49.250★

Foundations of Developmental Psychology

Basic principles of developmental psychology with a concentration on theories and methods. Emphasis is on the psychology of childhood and adolescence. Prerequisite: Psychology 49.100.

Day and Evening divisions: Lecture three hours a week.

Note:

No more than two of the following developmental branching courses may be credited towards the B.A. degree: Psychology 49.251★, 49.252★, 49.253★ 49.258★.

Psychology 49.251★

Psychology of Early Childhood

Development of the child from birth through the pre-school years of life; effect of early experience on later behaviour.

Prerequisite: Psychology 49.250★. Limited enrolment.

Day division: Lecture/seminar three hours a week.

Psychology 49.252★

Psychology of Middle Childhood

Development of the child during the elementary school years.

Prerequisite: Psychology 49.250★. Limited enrolment.

Evening division: Lecture/seminar three hours a week.

Psychology 49.253★

Psychology of Adolescence

Psychological growth and development from puberty to maturity. (Students may not offer both Psychology 49.253★ and Interdisciplinary 04.201 - no longer offered - for credit.)

Prerequisite: Psychology 49.250★. Limited enrolment. Not offered 1982-83.

Psychology 49.255★

Exceptional Children

Selected topics concerning exceptional children such as mentally retarded, brain damaged, physically handicapped, disturbed and gifted children. (Psychology 49.255★ and 49.256★ - no longer offered - may not both be offered for credit.)

Prerequisite: Psychology 49.250★.

Day division: Three hours a week.

Psychology 49.258★

Psychology of Adulthood and Old Age

An examination of theories of maturity; the problems, training and adjustments required in adulthood and old age; examination of changes in functioning during the aging process from biological, psychological and social interaction points of view.

Precludes credit for Psychology 49.254★ or 49.257★, no longer offered.

Prerequisite: Psychology 49.250★.

Evening division: Three hours a week.

Psychology 49.260★

Introduction to the Study of Personality

An introduction to the study of personality. Consideration of problems, methods and theories.

Prerequisite: Psychology 49.100★.

Day and Evening divisions: Lecture three hours a week.

Psychology 49.261★

Psychoanalytic Theories

Origin and evaluation of psychoanalytic theories with an emphasis on Freud and Jung.

Prerequisite: Psychology 49.250★ or 49.260★. Limited enrolment.

Day division: Lecture three hours a week.

Psychology 49.262★

Self Theories

An evaluation of the assumptive bases and research evidence relating to the positions of Rogers, Maslow and others.

Prerequisite: Psychology 49.260★. Limited enrolment.

Day division: Three hours a week.

Psychology 49.264★

Abnormal Psychology

History of the concept of behavioural abnormality. Theory and selected research dealing with the nature and etiology of behavioural abnormality.

Prerequisite: Psychology 49.250★ or 49.260★ or 49.100 and Third-year standing.

Day and Evening divisions: Lecture three hours a week.

Psychology 49.270★

Foundations of Learning

Learning and retention in humans and other animals, including a survey of theories, issues, methods and findings.

Prerequisite: Psychology 49.100.

Day and Evening divisions: Lecture three hours a week.

Psychology 49.272★

Behaviour Modification

Basic principles of learning and operant conditioning are related to aspects of behavioural analysis including techniques such as systematic desensitization, relaxation and counter-conditioning. Representative problem areas include retardation, obesity, smoking, alcoholism and phobias. (Students may not offer both Psychology 49.272★ and 49.341★ for credit.)

Prerequisite: Psychology 49.270★.

Not offered 1982-83.

Psychology 49.300★

Origins of Modern Psychology

The idea of science and its influence on man's conception of himself from Copernicus to Darwin. Scientific and humanistic influences on the emergence of psychology as an independent discipline in the late nineteenth century.

Prerequisite: Psychology 49.100.

Day division: Lecture/seminar three hours a week.

Psychology 49.301★

Precursors of Psychology

Ideas that shaped the emergence in the modern era of psychology as an independent discipline, as evidenced in man's speculations on his nature and his relations to the universe. Mind and body in ancient Egypt, Greece and Rome. Arabic influences and the Middle Ages. Elizabethan psychology. The case for a science of man.

Prerequisite: Psychology 49.100.

Not offered 1982-83.

Psychology 49.302★

Patterns of Twentieth Century Psychology

Systems and theories that have determined the course of experimental psychology since 1890. The collapse of structuralism and the rise of functional, Gestalt, and connectionist systems, and of conditioning. The behaviourist revolution, and the major learning theories of the mid-twentieth century.

Prerequisite: Psychology 49.100.

Day division: Lecture three hours a week.

Psychology 49.303★

Observation, Description and Explanation in Psychology

Problems of communication, concept formation and exploration in bio-social science are discussed. The interplay of facts, methods, models, theories and the human values which these serve are also explored.

Prerequisite: Psychology 49.100.

Day division: Lecture three hours a week.

Psychology 49.305

Psychological Statistics and Design

A solid foundation in descriptive techniques, probability theory, parameter estimation, hypothesis testing, linear regression, and correlation is developed. Basic models and their appropriateness in answering different types of research questions are emphasized. Computational procedures are given, but major emphasis is placed upon the decision processes involved in determining which statistical techniques can be applied in relation to different classes of experimental questions. (Successful completion of Psychology 49.305 precludes subsequent enrolment for credit in Psychology 49.205★. Students may not take Psychology 49.205★ and 49.305 concurrently.)

Precludes additional credit for Mathematics 69.250.

Prerequisite: Psychology 49.100.

Day and Evening divisions: Lecture three hours a week.

Psychology 49.308

The Analysis of Individual Behaviour

A review of clinical, psychometric and operant methods in the study of individual behaviour. The contributions of the three approaches are evaluated at the descriptive, predictive and functional levels. Ethical problems and principles are reviewed. Some field and laboratory work is required.

Prerequisites: Two full credits in psychology, including Psychology 49.100 and 49.200★. (A course in statistics is recommended.)

Not offered 1982-83.

Psychology 49.315★, 49.316★

Social Psychology II (Honours Seminar), History and Contemporary Theory

A survey in depth of early theoretical and research efforts in experimental social psychology. Attention is directed to the disappearance, reappearance, or continued growth of interest in these areas. Their impact on the various contemporary social psychological theories is considered.

Prerequisites: Psychology 49.200★ and 49.210★.

Usually open to Third- and Fourth-year Honours students in psychology.

Note:

The first half course is a prerequisite for the second. Generally the two parts must be taken in the same academic year to meet the Honours requirement.

Day division: Seminar three hours a week.

Psychology 49.321★

Perception

A consideration of data and theory concerning perceptual processes. Such topics as psycho-physical methodology, perception of form and space, and perceptual learning are discussed.

Prerequisite: Psychology 49.100★.

Day division: Lecture three hours a week.

Psychology 49.325

Physiological Psychology (Honours Seminar)

A detailed consideration of physiological approaches to the study of behaviour.

Prerequisites: Psychology 49.200★ and either Psychology 49.220★ or Biology 61.335. Intended for Honours students in at least the Third year.

Day division: Lecture three hours a week.

Psychology 49.327★

Drugs and Behaviour

An introduction to synaptic mechanisms and the arrangements of the transmitter-specific brain systems, followed by a discussion of neuro-pharmacological bases of normal and abnormal behaviour and of the behavioural effects of various classes of psychoactive drugs such as stimulants, tranquilizers, opiates, etc.

Prerequisites: Psychology 49.220★ and 49.270★. Limited enrolment.

Day division: Lecture/seminar three hours a week.

Psychology 49.330★

Principles of Psychological Testing

What psychological tests are, and how they are developed. Their usefulness and limitations as aids in making decisions about people. The application of testing principles to problems of experimental psychology. The course is designed for those who work with, or plan to work with psychological tests in any setting. Emphasis is on the logic of testing rather than on particular tests.

Prerequisite: Psychology 49.100.

Day division: Lecture/seminar three hours a week.

Psychology 49.331★

Human Differences

The meaning and worth of the evidence as to human differences derived from psychological tests results. Individual differences in intelligence, achievement, aptitudes, and personality. The problems of interpreting measured differences associated with race, sex, age and class. The course examines on the basis of psychometric evidence two contrasting hypotheses, that human potentialities are truly equal and that differences are basic and ineradicable.

Prerequisite: Psychology 49.100.

Day division: Lecture three hours a week.

Psychology 49.340

Personnel Psychology

A review of research and theory within the areas of organizational psychology, psychological testing, and human factors engineering. While the emphasis in the course is on the basic theory and research, efforts are made to relate the material to problems arising within industrial, governmental and educational organizations. The course content includes an introduction to psychometric methods and research in applied settings. Related course work in research methods or statistics is recommended but is not necessary for success in the course.

Prerequisite: Psychology 49.100.

Evening division: Lecture three hours a week.

Psychology 49.341★

Behaviour Modification in Education

Introduction to basic procedures and methods of operant conditioning as they apply to the classroom setting. This course is primarily designed for practising teachers, and a classroom project is required. (Students may not offer both Psychology 49.272★ and 49.341★ for credit.)

Prerequisite: Psychology 49.100.

Not offered 1982-83.

Psychology 49.342★

Criminal Behaviour

An examination of behavioural approaches to the classification and treatment of offenders. Theories and research relevant to selected patterns of law-breaking and selected offender types are reviewed. The value of behaviour modification and counselling programs within prisons is examined.

Prerequisite: Psychology 49.210★ or 49.260★.

Day and Evening divisions: Lecture/seminar three hours a week.

Psychology 49.343★

Addiction

A critical review of social-psychological theories and research on the acquisition and maintenance of addictive behaviour. The rationale and outcome of treatment programs for the abuse of alcohol, tobacco, the opiates and the amphetamines.

Prerequisites: Two full credits in psychology including 49.100.

Not offered 1982-83.

Psychology 49.344★

Play, Recreation and Sport Psychology

Behavioural and experiential aspects of selected forms of non-work activity are analysed to establish how the activities are to be identified, what functions they serve and what factors control or influence their modes of expression.

Prerequisites: Psychology 49.200★ and at least one of Psychology 49.210★, 49.250★ or 49.260★. Limited enrolment.

Not offered 1982-83.

Psychology 49.345★, 49.346★

Community Psychology (Honours Seminar)

A survey of the major theoretical, methodological and research efforts in community psychology. Major themes include: the analysis of human-social problems with reference to the social context within which behaviour problems are generated, maintained and labelled as problems; and a commitment to systematic assessment and conceptualization, intervention and research/evaluation. Problems of program administration are considered with reference to the realities of formal and informal decision-making processes within organizations.

Prerequisite: Psychology 49.200★. Usually open to Third- and Fourth-year Honours students in psychology.

Note:

The first half course is a prerequisite for the second. Generally, the two parts must be taken in the same academic year to meet the Honours requirement.

Day division: Seminar three hours a week.

Psychology 49.347★

Psychology of Motivation and Emotion

An historical review of the concepts of motivation and emotion is provided as a foundation for a detailed examination of such current concepts as anxiety, stress, and depression, among the emotions, and obesity, sexual behaviour, and the need to achieve, among the motivations. Material is drawn from the physiological, cognitive, social and personality areas of psychology to gain a comprehensive coverage of the selected topics.

Prerequisite: Psychology 49.100.

Evening division: Three hours a week.

Psychology 49.355★, 49.356★

Experimental Developmental Psychology (Honours Seminar)

Seminar on various theories of human development and related research. Students are required to evaluate and replicate research methods used in selected studies.

Prerequisites: Psychology 49.200★, 49.202★, 49.250★. (The latter may be taken concurrently.) Usually open to Third- and Fourth-year Honours students in psychology.

Note:

The first half course is a prerequisite for the second. Generally the two parts must be taken in the same academic year to meet the Honours requirement.

Day division: Seminar three hours a week.

Psychology 49.361★

Psychology of Women

An examination of the literature on the psychology of women. Topics to be considered include: theories of female personality development, sex differences in ability and personality, biological influences on female behaviour, female sexuality, sex roles, women's roles throughout the life span.

Prerequisite: At least one of Psychology 49.210★, 49.250★ or 49.260★. Limited enrolment.

Day division: Lecture three hours a week.

Psychology 49.362★

Transpersonal Psychology

This course represents the viewpoint that the scientific study of direct experience can provide valuable knowledge concerning the nature of human consciousness. Concern is also directed towards understanding techniques for altering consciousness and to systems of thought which make the experiences meaningful.

Prerequisite: Psychology 49.200★ or 49.300★ or three full credits in psychology. Limited enrolment.

Day division: Lecture three hours a week.

Psychology 49.365★

Investigations in Personality (Honours Seminar)

Seminar on various topics in the area of personality and related research.

Prerequisites: Psychology 49.200★ and 49.260★. Open to Third- and Fourth-year Honours students in psychology.

Day division: Seminar three hours a week.

Psychology 49.375★, 49.376★

Empirical Foundations of Learning (Honours Seminar)

One section deals with the specification of empirical variables in animal learning and with their relation to theoretical structures in accounting for their derivation from simple instrumental and classical conditioning. The other section is concerned with the empirical variables in human learning including the acquisition, transfer and retention of verbal skills, such as short- and long-term memory, serial and paired-associate learning, interference theories.

Prerequisites: Psychology 49.200★ and 49.270★. Usually open only to Third- and Fourth-year Honours students in psychology.

Note:

The first half course is a prerequisite for the second. Generally, the two parts must be taken in the same academic year to meet the Honours requirement.

Evening and Day divisions: Seminar three hours a week.

Psychology 49.380★, 49.382★, 49.384★

Special Topics in Psychology

The topics of this course, to be offered as demand warrants, vary from year to year and are announced well in advance of the period of registration.

A list of this year's topics can be obtained from the Psychology Undergraduate Office (B550 Loeb Building) after March 1.

Psychology 49.386★

Field Course in Animal Behaviour

Offered in the Department of Biology as 61.365★. Only those modules dealing with animal behaviour topics may be offered for psychology credit. (Departmental permission required.)

Not offered 1982-83.

Psychology 49.391★, 49.393★

Practicum in Community Psychology

This course supplements the theoretical and research orientation of the classroom with supervised field work. Emphasis is equally on gaining applied experience and on active and detailed study of community settings such as correctional institutions and centres for treatment and management of the retarded and the elderly. Readings, discussions, and reports are integrated with the program in the different settings. Research efforts are encouraged.

Prerequisite: Open to Third- and Fourth-year students in psychology with permission of the department.

Note:

Psychology 49.393★ is open only to students in the Criminology and Corrections program. For placement reasons, pre-registration in this course is strongly recommended.

Schedule to be arranged.

Psychology 49.490★, 49.492★

Independent Study

A reading or research course for selected students who wish to investigate a particular topic of interest. Available to Third- and Fourth-year students only. Normally students may not offer more than one full credit of independent study in their total program.

Prerequisite: Permission of the department.

Psychology 49.498

Thesis for Honours in Psychology

Candidates for the Honours degree in psychology are required to present a thesis conducted under the supervision of a faculty adviser. The project may take the form of an experiment, a case study, a survey, archival research, or such other work as meets with the adviser's approval. The thesis is evaluated by both the adviser and the Psychology 49.498 co-ordinator.

Note:

Summer session registration in Psychology 49.498 is available only to students who were officially registered in and attended meetings of the course during the immediately preceding Winter session.

Note:

Faculty regulations concerning the Honours thesis are detailed on p. 97.

Prerequisite: Fourth-year Honours standing in Psychology; Psychology 49.305; 49.200★ and one of 49.201★, 49.202★, 49.203★, 49.204★ (or 49.308); completion of an Honours Seminar sequence.

Day division.

Summer School and Evening Division Courses

The Department of Psychology cannot guarantee that courses needed to meet the requirements of the B.A. Honours degree or B.Sc. Honours degree will be available in either the Summer session or the Winter Evening session.

School of Public Administration

Officers of the School

Director

Allan M. Maslove

Supervisor of Undergraduate Studies

Donald Swartz

Faculty

Richard D. Abbott
G. Bruce Doern
Harvey Lithwick
Rianne Mahon
Michael Prince
Sharon Sutherland
Donald Swartz
Eugene Swimmer
George Warskett
V. Seymour Wilson
Stanley Winer

Committee of Management

Richard Abbott (*Public Administration*)
D. Bellamy (*Political Science*)
R. Beshara (*Business*)
G.B. Doern (*Public Administration*)
D. Elliott (*Law*)
D.P. Forcese (*Dean, Faculty of Social Sciences*)
C. Gordon (*Sociology-Anthropology*)
W. Hettich (*Economics*)
H. Lithwick (*Public Administration*)
R. Mahon (*Public Administration*)
A. Maslove (*Public Administration*)
B. McFarlane (*Sociology*)
M. Prince (*Public Administration*)
S. Sutherland (*Public Administration*)
D. Swartz (*Public Administration*)
E. Swimmer (*Public Administration*)
G. Warskett (*Public Administration*)
V.S. Wilson (*Public Administration*)
S. Winer (*Public Administration*)
C. Winn (*Political Science*)

Five Student Representatives (two graduate, two undergraduate)

General Information

The School of Public Administration was established in 1953 through the assistance of a generous grant from the Atkinson Charitable Foundation.

The programs of the school have been developed out of an awareness of the need to provide a general education that will familiarize public servants and students contemplating a career in government service with the main organizational, political, economic and legal elements of the environment of the public service.

The Bachelor of Public Administration is an Honours program planned on the assumption that the most suitable education for a person desiring to be a capable public administrator is broad and general in base, with an emphasis on political economy. While it is designed to be of particular use to students contemplating careers in public employment, it also provides a sound general education for those considering the legal profession or business.

The Certificate program, on the other hand, will be most helpful to those who desire training in fields directly related to public administration. This course is designed to encourage public servants without university training to broaden their background. Since they are allowed degree credit for this work, they will also be encouraged, upon its completion, to continue toward a Bachelor of Arts degree.

Public employees not interested in registering for studies leading to a degree, a certificate or a diploma should note that they may, as Special students, take any of the subjects listed in public administration programs for which they have the requisite background. Their attention is directed also to non-credit extension courses related to public administration that are offered from time to time by the university. Details may be obtained from the School of Continuing Education.

Because Carleton University is located in the capital city and enjoys close relations with many government agencies, students of public administration may profit greatly from the unique advantages thus offered. Such institutions as the Library of Parliament, The National Library, the Public Archives, Statistics Canada, and the specialized libraries of the several government departments, all offer unusual opportunities for study in Ottawa.

Bachelor of Public Administration

Qualifying University and First years offered in both Day and Evening divisions, last three years offered in Day division only.

Admission Requirements

Same as for Faculty of Social Sciences (See p. 96.) Students not meeting Honours requirements for admission to the First year will be considered for transfer to the Second year after successfully completing the First year in a general Bachelor of Arts program.

Requirements for continuation in Honours are found on pp. 97-98.

Course Requirements

Candidates for the degree of Bachelor of Public Administration must satisfy all requirements for the B.A. with Honours.

The school requires Honours students to have a reading knowledge of French. As a minimum language requirement students must complete at least one full course in French during their First or Second undergraduate years. After the language placement test is taken, students will be streamed into one of the following:

French

- 20.100 Elementary French
- 20.101 Intensive Introductory French (2 credits)
- 20.102 Intermediate French (A)
- 20.103 Intermediate French (B)
- 20.108 Advanced French for Non-Majors

Students wishing exemption from this requirement must satisfy the School of Public Administration that they meet the minimal language proficiency required. Depending on individual preferences, and performance in these First-year courses, students wishing to proceed further in French language training and language appreciation could choose from the following options. This choice must be made in consultation with the French department.

French

- 20.111 Advanced French (A)
- 20.267★ La littérature du XIXe siècle au Canada français
- 20.268★ La littérature du XXe siècle au Canada français

The school strongly encourages students to continue gaining proficiency in the French language by selecting at least one of their options in the French department.

Fourth-year students who select the Honours Essay (Public Administration 50.498) must have a detailed outline of the essay approved by the Supervisor of Undergraduate Studies and the student's supervisor by early October.

Students must achieve a grade of B- or better in the Honours Essay and must follow the essay submission and registration requirements as outlined on p. 97.

First Year

Students contemplating study in Public Administration must take Economics 43.100 and Political Science 47.100 in the First year. Students are advised to meet the school's language requirement in their First year. If this is not feasible then the language requirement must be completed by the Second year of the undergraduate program.

Second Year

1. Accounting

- 41.100 An Introduction to Accounting, or
- 41.101★ Principles of Financial Accounting, and
- 41.102★ Management Accounting

2. Economics

- 43.201★ Introduction to Microeconomics Theory and Analysis, and
- 43.211★ Introduction to Macroeconomics Theory and Analysis

3. Law

- 51.205 Introduction to Public Law

4. Political Science

- 47.200 Canadian Government and Politics

- 5. One approved full-course option (French requirement must be completed if not taken in First year)

Third Year

- 1. One full course equivalent chosen from:

Law

- 51.353 Civil Liberties and Human Rights
- 51.354★ Law and Native Peoples of Canada
- 51.374 Local Government Law
- 51.380 Law of Environmental Quality
- 51.445★ Labour Relations in the Public Service
- 51.450 Canadian Constitutional Law
- 51.456★ Administrative Law I
- 51.457★ Administrative Law II

2. Political Science

- 47.401 Policy Making in Canada

3. One of:

Political Science

- 47.270 Political Enquiry

Economics

- 43.220 Statistical Methods in the Social Sciences

4. Political Science

- 47.340 Canadian Public Administration

- 5. One approved full course option

Fourth Year

1. Economics

- 43.441★ Public Finance: Taxation
- 43.442★ Public Finance: Expenditures

2. Political Science

- 47.448 Public Organizations: Theory and Practice

3. Public Administration

- 50.400 Public Administration Seminar

4. Public Administration

- 50.498 Honours Essay, or
- 50.499 Honours Comprehensive

- 5. One approved full course option

Certificate in Public Services Studies

Offered in both Day and Evening divisions.

This course is designed primarily for public employees who seek special training in public service subjects at the undergraduate level.

Courses taken for the certificate are normally creditable towards a Bachelor of Arts degree and a transfer student from the certificate program into such a degree program will be normally required to take at least nine further courses in addition to those required for the certificate, to be recommended for the degree. At least five of the courses required for a Bachelor of Arts degree must be completed after the awarding of the certificate.

Full-time candidates for the certificate are invited to enquire about possible financial aid.

Admission Requirements

Junior Matriculation. The cases of experienced applicants without Junior Matriculation will be considered on their merits and the completion of certain subjects at Carleton may be required before admission. Candidates may be admitted with advanced standing, but must complete at least five courses for the certificate at Carleton University.

Individuals who have completed an undergraduate degree are not considered for admission to the certificate program. They are encouraged, however, to investigate the undergraduate and graduate degree and diploma programs offered by the School.

Course Requirements

The following courses are required and the following order is suggested:

1. Political Science 47.100
2. Economics 43.100
3. History 24.231 or Economics 43.325
4. Political Science 47.200
5. Political Science 47.340
6. One other chosen in consultation with the Director according to the needs of the students.

Academic Standing

A candidate for the certificate must obtain a grade of C or better in at least half of the courses taken at Carleton University for the certificate.

Courses Offered

Public Administration 50.400

Public Administration Honours Seminar

A research seminar for Fourth-year public administration students only. The seminar is supported by the active involvement of several faculty members, each committing about three or four weeks to participation in seminar discussions and/or lectures. While the specific content of the course may change each year, the course deals more *extensively* than in any previous

year's course with areas or sectors such as the following: the role and management of state enterprise; regulatory processes and outcomes; public sector industrial relations; public sector financial accountability.

Day division: Three hours a week.

Public Administration 50.498

Honours Essay

Tutorial hours arranged.

Public Administration 50.499

Honours Comprehensive Examination

Required in Fourth year in public administration if Honours Essay (Public Administration 50.498) is not written. The Honours Comprehensive Examination examines the students across the discipline bases or areas on which the Honours program is built: (a) political science, (b) economics, (c) law, (d) management and organizational studies. The examination is held on the third Monday in March. Details and preparatory reading lists can be obtained from the Supervisor Undergraduate Studies. A grade of B- or better must be achieved.

Officers of Instruction

Chairman
Robert M. Polzin

Professors
David Chung
Antonio R. Gualtieri
Robert E. Osborne
Robert M. Polzin
Lawrence M. Read
C. Peter Slater
Stephen G. Wilson

Associate Professor
Nalini Devdas
John P. Dourley
Leonard Librande
Eugene Rothman

Assistant Professor
Joseph G. Ramisch

Adjunct Professor
Anne M. Squire

General Information

The general purpose of courses offered in this department is to promote a sensitive and intellectually mature understanding of the basic ideas and concerns of outstanding religious leaders and movements irrespective of whether these coincide or conflict with individual convictions. Religious writings are studied critically, in an attempt to understand their meaning, to grapple with their problems, and to assess their significance both in their original cultural context and for our own situation.

Courses Open to First Year Students

Courses open to First-year students are described on p. 99 of the calendar. The appropriate introductory course to the study of Religion is 34.100★ and any one of the other 100-level half-courses.

Programs of Study

Students who elect religion as their Major or Honours subject will consult with their respective departmental adviser before registration each year.

Department program advisers are:

Honours, S.G. Wilson
Majors, Robert E. Osborne
Graduate Supervisor, J.P. Dourley

Main Areas of Study

- Religion courses are offered in three main areas:
1. Philosophical-Theological Studies of Religion: Religion 34.100★, 34.101★, 34.200, 34.201, 34.235, 34.238★, 34.260, 34.265★, 34.266★, 34.280, 34.290★, 34.306, 34.331★, 34.332★, 34.333★, 34.390, 34.392, 34.488★, 34.489★, 34.490, 34.492.
 2. History of Religion: Jewish and Christian Traditions: Religion 34.102★, 34.103★, 34.104★ (in part), 34.107★, 34.219, 34.223★, 34.225, 34.240, 34.270, 34.321★, 34.323, 34.330, 34.331★, 34.332★, 34.333★, 34.337, 34.350, 34.378★, 34.390, 34.392, 34.486★, 34.487★, 34.490, 34.492.
 3. History of Religion: Other Religious Traditions: Religion 34.104★ (in part), 34.105★, 34.106★, 34.204, 34.205, 34.206, 34.207, 34.208, 34.278, 34.320★, 34.325★, 34.331★, 34.333★, 34.342★, 34.390, 34.392, 34.484★, 34.485★, 34.490, 34.492.
- For classification of Religion 34.237★, 34.331★, 34.332★, 34.333★, 34.336★ and 34.390 each year, consult the Majors Adviser.

Major Programs

Students majoring in religion shall acquire six credits in religion. Of these six credits, at least one credit must be at the more advanced levels, that is, 300 or above. In addition, of these six credits, at least one must be in each of the three main areas of study as set forth above. Courses shall be selected in consultation with the Majors Adviser.

Combined Major Programs

A Major combining religion with another subject must include at least four credits in religion. The precise pattern of courses for each student must be approved by the Departmental Majors Adviser.

Honours Programs

Honours in Religion

The Honours program may be entered at the beginning of the First year or in later years or by transfer from the Major program.

Students in the Honours program shall acquire ten credits in religion. In acquiring six of these credits the student shall fulfill the Majors requirements set forth above. In addition, the student shall acquire four other credits of which two shall be at the 400 level, that is, 34.490 or other 400-level seminars. Courses shall be selected in consultation with the Honours Adviser.

Combined Honours Program

Students enrolled in a Combined Honours program are required to take seven credits in religion. In acquiring six of these credits the student shall fulfill the Majors requirements set forth above. In addition, the student shall acquire one credit at the 400 level. The precise pattern of courses for each student must be approved by the Departmental Honours Adviser.

Combined Honours in Philosophy and Religion

Philosophy: At least seven credits including: an introductory course or the equivalent; two of Philosophy 32.205, 32.215, 32.225, 32.270, 32.305, 32.380, 32.416★ and another half-credit; 32.210 or 32.330; 32.250 or if not already taken 32.380; 32.260 if not already taken as Religion 34.260, in which case another upper-level credit; one full credit or the equivalent at the 400 level.

Religion: Requirements are those listed above for Combined Honours program.

Courses Offered

Note:

In certain cases, notably Religion 34.204, courses listed as being offered in the Evening division, may be scheduled at 4:30 p.m.

Religion 34.100★

Interpretations of Religion

The course deals with modern discussions of the nature of religion — conceptions of self, society, God, and ultimate destiny — from the perspectives of anthropology and history, psychology and sociology, myth and symbol, philosophy and theology, and values for the future.

Day division, First and Second terms: Lecture-discussion periods three hours a week.

Religion 34.101★

Exploring Religious Meaning In the Modern World

An introduction to religious themes, attitudes and values in secular life as expressed in contemporary art, literature and social movements. Topics include love and alienation, the meaning of life and death, faith and doubt, truth and relativism, peace and liberation, transcendence and self-realization.

Not offered 1982-83.

Religion 34.102★

Introduction to the Literature of the Hebrew Bible (Old Testament)

An examination of the books of the Hebrew Bible. Emphasis is given to literary approaches to the text, that is, to the kind of disciplined attention which has illuminated the manifold examples of world literature through a variety of critical approaches.

Evening division, First term, Day division, Second term: Lecture-discussion periods two hours a week. Note: Students who have taken Religion 34.120, no longer offered, may not register for this course.

Religion 34.103★

Introduction to New Testament Literature

A general survey of New Testament literature. An examination of its background in the Roman world and sectarian Judaism. The formation of the Canon and the Synoptic Problem. The texts focused on are the Gospels, Acts, writings of Paul, the Johannine literature and the Book of Revelation.

Students taking this course are also encouraged to take Religion 34.102★.

Day division, First and Second terms: Lecture-discussion periods three hours a week.

Note: Students who have taken Religion 34.120, no longer offered, may not register in this course.

Religion 34.104★

Religious Traditions In the Middle East

Common patterns of development in the living religions of the Middle East: Judaism and Islam — with comparative references to Christianity. Their organization, basic beliefs, social and ethical principles and practices.

Day division, Second term: Lecture-discussion periods three hours a week.

Religion 34.105★

Hindu Yoga and the Buddhist Middle Way

An introduction to the historical development of methods of liberation cultivated by Hindus and Buddhists in India: their philosophical bases, ethical systems, devotional practices, and techniques of meditation.

Evening division, First term: Lecture-discussion periods three hours a week.

Religion 34.106★

Religious Thought and Practice In China and Japan

Introductory survey of the Chinese and Japanese religious faiths with emphases on their mythological, philosophical, ritualistic aspects and value systems.

Day division, Second term: Lecture-discussion periods three hours a week.

Religion 34.107★

Christianity

An introduction to Christian thought, Catholic and Protestant, concerning such major issues as the character of God, the role of Christ and the Church, the authority of the Bible, human nature and destiny, the ecumenical and charismatic movements, the ordination of women, and the impact of secular culture.

Not offered 1982-83.

Religion 34.200

The Encounter of Science and Religion

The history of the encounter of science and religion from the seventeenth century to the present day.

Scientific method and the approach of religion; scientific theories and theological doctrines; science and secular faith.

Day division: Lecture-discussion periods three hours a week.

Religion 34.201

Women in Religious Traditions

Feminine symbols and historical attitudes towards women in religion. Themes such as the following are examined: traditional archetypes of women as earth mother, personified wisdom, temptress and virgin; the status of women in major religious traditions both western and eastern; the application of contemporary theologies of liberation to the feminist movement.

Day division: Lecture-discussion periods two hours a week.

Religion 34.204

The Hindu Tradition: Studies in the Nature of Human Consciousness

A survey of the concepts of consciousness and yogic techniques developed in the Hindu schools of thought, with special emphasis on Vedanta; the use of mythology and symbolism in Hindu practice; a reinterpretation of Yoga in the modern Hindu tradition.

Not offered 1982-83.

Religion 34.205

The Buddhist Middle Way: Its Indian Developments

A survey of the concepts and techniques of meditation developed in Indian Buddhism from its origin until the twelfth century A.D.; an introduction to Buddhist art and mythology; a brief account of Tantric Buddhism in India and Tibet.

Day division: Lecture-discussion periods three hours a week.

Religion 34.206

Religions and Philosophies of East Asia

A study of the history and thought of Confucianism, Taoism, Mahayana Buddhism including Zen, and Shinto, in China and Japan, with intensive readings in their classical texts in translation and contemporary literature.

Prerequisite: Religion 34.106★ or permission of the department.

Not offered 1982-83.

Religion 34.207

Ancient Near Eastern and Graeco-Roman Religions

An investigation of selected writings in English translation from Egypt, Mesopotamia, and Israel. The writings studied include narratives, myths, wisdom literature, hymns and poetry. Major themes of this literature include: the world of the gods; the creation of the universe; friendship; the inevitability of death; how to succeed in business and life. This is followed by a study of selected topics in Graeco-Roman religion, such as Homeric religion, chthonic cults, the Sophists, astrology, ruler cults, mystery religions and gnosticism.

Not offered 1982-83.

Religion 34.208

Islam

A historical survey of the Muslim religious tradition. The subjects chosen for special study are the following: (1) the life and work of Muhammad; (2) the Koran; (3) aspects of the Islamic intellectual tradition, law, philosophy, theology and mysticism; (4) the basic beliefs and practices of Muslims. The goal throughout is to achieve an understanding of the ways in which Muslims have articulated, developed and dealt with major issues.

Not offered 1982-83.

Religion 34.219

Life, Thought and Wisdom in Ancient Israel

An examination of the major methods used by scholars in studying the Hebrew Bible (i.e., source criticism, form criticism, and tradition history) and how these relate to new approaches such as literary or structural analysis. Topics include creation and myth, Israel's patriarchs, the exodus from Egypt, revelation at Sinai, the occupation of Canaan, tensions between religious faith and personal experience, God and the presence of suffering in the world, rules for success in life and business, the religious sceptic, the problems of suicide and the delights of human love.

Not offered 1982-83.

Religion 34.223★

Judaism in the Era of the Second Temple

A study of the period from about 400 B.C. to 100 A.D.: the history, movements, and ideas crucial to the development of Judaism and Christianity, as documented especially in the writings which were not included in the Bible. Consideration of wisdom literature, apocalyptic writings, historical works and Rabbinical literature. Special attention is given to the Dead Sea Scrolls. Day division, First term: Lecture-discussion periods two hours a week.

Religion 34.225

The Life and Teaching of Jesus

The course is concerned with a systematic study of the available records of the life of Jesus. Class periods are mainly taken up with free class discussions of successive sections of the gospel parallels of Matthew, Mark and Luke. There are accompanying lectures and readings on the historical context of the life of Jesus and on the milieu within which the records developed.

Day division: Seminar three hours a week.

Religion 34.235

Religion and Contemporary Moral Issues

An analysis of the nature of religious ethics, both the explicit moral principles and rules of various religious traditions, and the general moral perspectives generated by religious images of ultimate reality, history, human nature and the physical world. In the light of this, contemporary moral issues such as the following are examined: cultural integrity (e.g., Indian, Inuit, Québécois), violent liberation and just war, crime and

punishment, sexuality, role of men and women, marriage, abortion, alienation in modern society, drugs, economic order and conflict, ecology and pollution. Prerequisite: Any other Religion course or permission of the department.

Day division: Lecture-discussion two hours a week.

Religion 34.237★

Selected Topics in Religion

Topic for 1982-83: Religious Cults and Spiritual Movements in North America. A historical and critical study of recent alternatives to traditional religions, such as Hare Krishna, Scientology and the Charismatics.

Day division, First term: Lecture-discussion periods two hours a week.

Religion 34.238★

Death and Afterlife

The meaning of death and afterlife in some religious traditions and secular philosophies with emphasis on Christian, Hindu and Buddhist expressions. (Students are reminded of a complementary course, Philosophy 32.246★.)

Day division, First term: Lecture-discussion periods two hours a week.

Religion 34.240

Judaism and the Jewish People

An introduction to Judaism and the Jewish people from the destruction of the Second Temple in 70 C.E. until the present day in Europe and America. A broad historical survey of the religion, culture and civilization of the Jews in the East and the West during the Rabbinic age, the Middle Ages and the modern period. Special attention is given to basic beliefs and practices as well as to trends and movements important to contemporary Judaism.

Evening division: Lecture-discussion periods two hours a week.

Religion 34.260

Philosophy of Religion

Offered in the Department of Philosophy as Philosophy 32.260.

Religion 34.265★

Historic Figures in the Psychology of Religion

Discussion of religiously significant texts from the works of William James, Sigmund Freud and C.G. Jung.

Prerequisite: One course in religion or psychology or permission of the department.

Not offered 1982-83.

Religion 34.266★

Contemporary Psychologies of Religion

An examination of developmental, experimental, humanistic and existential theories in psychology as these shed light on religious thought, behaviour and institutions.

Prerequisite: One course in religion or psychology or permission of the department.

Not offered 1982-83.

Religion 34.270

The Development of Christian Thought

The historical and cultural development of selected aspects of Christian thought from its origins to the modern period. Problems considered are the early shift from a semitic to a hellenistic culture; the beginnings of the church as an institution; the development of thinking about Jesus in the early councils; conciliarism and other theories on the nature of the church; medieval efforts at reform; issues in the Protestant Reformation and its aftermath. Analysis of the way change and development have taken place in Christianity is also included.

Not offered 1982-83.

Religion 34.278

The Middle East: 1798 to the Present

The history of the development of the civilization and culture of the Middle East from 1798 to the present with special emphasis on the mutual discovery of East and West, the search for identity, the impact of colonialism and international rivalry, and social, religious and cultural change within a continuing tradition.

(Offered in the Department of History as History 24.278.)

Day division: Lecture-discussion periods two hours a week.

Religion 34.280

Modern Religious Thought

An examination of the major currents and developments of religious and philosophical thought among Protestants and Catholics in the nineteenth and twentieth centuries. Protestant developments are traced from the Kantian critique to the present and Catholic thought from its response to the French Revolution up to and beyond Vatican II.

Prerequisite: One course in religion or philosophy.

Not offered 1982-83.

Religion 34.290★

Religion in Canada

A study of religious traditions in Canadian history and religious aspects of Canadian culture, with particular reference to major issues and movements in modern times, such as the Women's Christian Temperance Union, reactions to the Great Depression, Canada's participation in World War II, and cross-cultural conflicts among immigrants and native peoples.

Prerequisite: One full credit in religion, Canadian studies or permission of the department.

Not offered 1982-83.

Religion 34.306

Models of God and Man in the Thought of Paul Tillich, Teilhard de Chardin and C.G. Jung

The course focuses upon a common problematic central to these modern thinkers with backgrounds in theology, science and psychology, namely the nature of God's presence to and activity in nature and life.

The course exposes the concerns and pressures operative in their formulation of the question of God and with the similarities and disparities of their responses. Special attention is given to their models of the relationship of divine immanence and transcendence and to the consequent shape of the major Christian symbols within these models.

Prerequisite: One of Religion 34.100★, 34.200, 34.265★, 34.280.

Summer Evening division: Seminar three hours twice a week.

Religion 34.320★

Selected Problems in Indian Thought

Topic for 1982-83: The Bhagavadgita and Modernity. A study of the responses of the Hindu tradition to modernity based on the interpretations of the Bhagavadgita by Swami Vivekananda, Kōkanyā Tilak, Sri Aurobindo and Mahatma Gandhi in the context of the Indian National Movement.

Day division, First term: Three hours a week.

Religion 34.321★

The Hebrew Prophets

A study of the major and minor prophetic books of the Hebrew Bible. Emphasis is given to the texts themselves and the various interpretations which historical and literary scholars have proposed. Attention is given to the Ancient Near Eastern context out of which Israelite prophecy arose.

Prerequisite: Religion 34.102★ or permission of the department.

Day division, First term: Seminar two hours a week.

Religion 34.323

Religion and the State, Europe 1815-1965

Offered in the Department of History as History 24.323.

Religion 34.325★

Zen (Ch'an) Buddhism

Historical development of Zen Buddhism; discussion of the writings of Zen masters and Zen literature in general; thematic discussions of Zen approaches to Satori; appreciation of Zen paintings and calligraphy. Not offered 1982-83.

Religion 34.330

The Life and Thought of Paul

Paul's relation to the Old Testament, Rabbinic Judaism, and Hellenism; the mission to the Gentiles; the "mysticism" of Paul; central ideas such as justification by faith, predestination, the Holy Spirit, the Church. Consideration of the situation and message of each of Paul's writings.

Prerequisite: Religion 34.103★ or 34.225 or permission of the department.

Not offered 1982-83.

Religion 34.331★

Theory and Method in the Study of Religion

Examination of selected theoretical and methodological models used in the interpretation of religious data. For example, a study of historical, phenomenological, or theological approaches to religious studies. The specific topic may vary from year to year.

Prerequisite: Permission of the department.

Day division, Second term: Seminar three hours a week.

Religion 34.332★

Studies on Christianity

Selected problems in the study of the Christian religion. For example, an examination of Christ in recent Christian thought. The specific topic may vary from year to year.

Prerequisite: Permission of the department.

Not offered 1982-83.

Religion 34.333★

Studies on Major Religious Thinkers

An examination of a significant religious figure whose teachings have profoundly influenced man's understanding of the nature of religion or of specific religious traditions. The selection of the person to be studied may vary from year to year.

Prerequisite: Permission of the department.

Not offered 1982-83.

Religion 34.336★

Selected Topics in Religion

Not offered 1982-83.

Religion 34.337

The Johannine Literature

The course considers interpretations of the Fourth Gospel and the Johannine Epistles involving a close examination of the texts and related problems, such as historical value, symbolic features.

Prerequisite: Religion 34.103★ or 34.225 or permission of the department.

Evening division: Seminar three hours a week.

Religion 34.342★

Selected Topics in Islam

Not offered 1982-83.

Religion 34.350

Modern Jewish Thought

Modern Jewish thought in response to the Enlightenment, the Zionist and Reform movements, the Holocaust and the establishment of Israel. Special attention is given to such authors as Mendelssohn, Hirsch, Herzl, Rosenzweig and Fackenheim. Different themes are studied each year the seminar is taught.

Prerequisite: Religion 34.104★ or 34.240 or permission of the department.

Not offered 1982-83.

Religion 34.378★

The Reformation Era in European History, 1409-1648
Offered in the Department of History as History 24.378★.

Religion 34.390

Selected Problems in Interpretation

A course conducted on a tutorial or seminar basis designed to enable advanced students to pursue interests in selected areas of religion. Problem selected for 1982-83: The value of relational and process emphases in theology.

Prerequisite: Permission of the department.

Day division: Seminar two hours a week.

Religion 34.481★

Religious Iconography: Biblical Themes in Western Art.

Offered in the Department of Art History as Art History 11.484★.

Religion 34.484★

Seminar In Comparative Religion

Prerequisite: Permission of the department. Normally only Fourth year Honours or Combined Honours students are admitted.

Not offered 1982-83.

Religion 34.485★

Seminar in Comparative Religion

Prerequisite: Permission of the department. Normally only Fourth-year Honours or Combined Honours students are admitted.

Not offered 1982-83.

Religion 34.486★

Seminar in Biblical and Ancient Near Eastern Studies
Jewish Christian relations in the first two centuries C.E.

Prerequisite: Permission of the department. Normally only Fourth-year Honours or Combined Honours students are admitted.

Evening division, First term: Seminar three hours a week.

Religion 34.487★

Seminar in Biblical and Ancient Near Eastern Studies

Prerequisite: Permission of the department. Normally only Fourth-year Honours or Combined Honours students are admitted.

Not offered 1982-83.

Religion 34.488★

Seminar in Modern Religious Thought and Culture:

Prerequisite: Permission of the department. Normally only Fourth-year Honours or Combined Honours students are admitted.

Not offered 1982-83.

Religion 34.489★

Seminar in Modern Religious Thought and Culture: The Interconnection of Religion and Ethics

An enquiry into the connection between assumptions about the sacred, persons, history and nature implied or explicated in the doctrines and symbols of religious traditions, and the morality of those traditions.

Prerequisite: Permission of the department. Normally only Fourth-year Honours or Combined Honours students are admitted.

Evening division, Second term: Seminar three hours a week.

Religion 34.490★

Thesis (Equivalent to two courses)

Prerequisite: Permission of the department.

Day or Evening division: Hours to be arranged.

Religion 34.492

Thesis (Equivalent to one course)

Prerequisite: Permission of the department.

Day or Evening division: Hours to be arranged.

■ Language Courses

Language courses are intended primarily for students wishing to specialize in a particular religious tradition. Courses taken at the 200 level or above will be mainly independent study under the supervision of a member of the department. Students interested in taking these courses should consult the department chairman.

Religion 34.115

Introduction to Hebrew

An introduction to Hebrew with emphasis on reading comprehension. A study of the prose language of the Hebrew Bible in its basic vocabulary and grammar. Restricted to beginners in the language.

Prerequisite: Permission of the department.

Not offered 1982-83.

Religion 34.116

Introduction to Arabic

An introduction to modern standard Arabic with emphasis on reading. The course is restricted to beginners.

Not offered 1982-83.

Religion 34.117

Introduction to Sanskrit

Introduction to the fundamentals of the language with emphasis on reading and writing skills.

Day division: Three hours a week.

N. Devdas

Religion 34.215

Intermediate Hebrew

Readings in classical biblical Hebrew with emphasis on the grammatical structure and vocabulary of its prose language.

Prerequisite: Permission of the department.

R.M. Polzin

Religion 34.216

Intermediate Arabic

Second-level study of modern standard Arabic grammar and style through readings and exercises.

Prerequisite: Religion 34.116 or permission of the department.

Not offered 1982-83.

Religion 34.217

Readings in Sanskrit Literature

A study of selected readings from early Hindu literature.

Prerequisites: Religion 34.105★ and 34.117.

Day division: Lecture periods three hours a week.

N. Devdas

Religion 34.218

New Testament Greek

A study of the form and content of prescribed readings from the New Testament in Greek with guidance in translation and exegesis.

Prerequisites: Greek 15.115 and Religion 34.103★ or 34.120

Day division: Lecture periods three hours a week.

S.G. Wilson

Religion 34.392

Language Tutorial

An advanced study of a language in which one of the religious traditions has been transmitted.

Day or Evening division: Hours to be arranged.

Department of Russian

Officers of Instruction

Chairman

B.W. Jones

Professor

V.I. Grebenschikov

Associate Professors

G.R. Barratt

G. Melnikov

P. Varnai

Instructors

A. Lewinson

H. Van de Lagemaat

Honours and Majors Supervisor

B.W. Jones

The Russian Program

The Department of Russian offers a flexible undergraduate program. It has been designed to satisfy a range of different academic and professional interests. Courses are offered in the areas of Russian literature, Russian languages and linguistics (including an option for translation training), and Soviet period studies. Details of each degree program are listed immediately below. The department also offers special-interest courses and tutorials in the areas of literature in translation, scientific and business Russian, Ukrainian and other Slavic languages, and Hungarian.

The minimum credit requirements for a degree in Russian, after the completion of Russian 36.100, or the equivalent, are as follows: Major, six; Combined Major, five; Honours, nine; Combined Honours, seven.

Major Program

The minimum requirements for the Major in Russian, after the completion of Russian 36.100, include 36.150, 36.200, 36.203, 36.260 and two additional Russian credits at the 200 level or above. Russian 36.260 should be taken concurrently with 36.150.

The minimum requirements for the Combined Major, after the completion of Russian 36.100, include 36.150, 36.200, 36.203, 36.260 and one additional Russian credit at the 200 level or above. Russian 36.260 should be taken concurrently with 36.150.

Honours Program

Students should plan their program in accordance with their interests and their needs and in consultation with the department.

The minimum requirements for the Honours degree in Russian, after the completion of Russian 36.100, include 36.150, 36.200, 36.201★ and 36.301★, 36.203, 36.260, and four additional credits at the 300 or 400 level, including 36.335 or 36.355 and at least one credit at the 400 level.

The minimum requirements for the Combined Honours degree, after the completion of Russian 36.100, include 36.150, 36.200, 36.201★ and 36.301★, 36.203, 36.260, 36.335 or 36.355 and one additional credit at the 300 or 400 level.

Combined Honours programs are possible with a number of other subjects, among them history, political science, journalism, English, French, Italian, German, Spanish and linguistics. The department also participates in the comparative literature program, and the Institute of Soviet and East European Studies.

Combined Honours in Russian and Linguistics, Translation Option

A special Combined Honours program is available to students contemplating a career in Russian to English translation. In this program, the following courses are required:

Linguistics

29.100 Introduction to Linguistics

29.301★ Phonetics

29.303★ Language Analysis

29.304★ Grammatical Theory

29.485 Structures of English

29.490 Tutorial in Linguistics. Tutorial consists obligatorily of directed readings in the theory of translation.

Russian

36.150 Intermediate Russian

36.200 Advanced Russian

36.203 Russian Grammar

36.300 Russian Style and Composition

36.303 Russian Translation

36.495 Tutorial. For students in this program a practicum in translation, with analysis and criticism of selected professional translations.

36.499 Honours Essay. For students in this program an annotated translation of a substantial piece of text, with oral defence before a panel consisting of a member of the Russian Department, a member of the Linguistics Department, and a professional translator.

French

At least a 100-level credit.

At least five of the remaining course credits shall be chosen from offerings in the following areas: Mass

Communication (27.111 Introduction to Mass Communication), accounting, economics, geography, political science, law, sociology-anthropology, biology, chemistry, geology, physics, computer science, French (above the 100 level). Russian literature courses may also be selected.

Departmental Tutorial Program

Students with advanced or specialized interests in Russian and Slavic studies should examine the tutorials offered by the department in the areas of literary and language study. These tutorials allow individual or small group study of particular interests for which there is a demand. Enquiries should be directed to the department or to individual faculty members.

Special Interest Courses

1. *Scientific Russian*: The department offers a special course of reading and translation for students in the natural and social sciences and engineering, and for others interested in the rapid acquisition of a reading skill in technical Russian. Russian 36.110 is specifically designed to meet the needs of such students. The course may serve as an option for students in any program.

2. *Business Russian*: The department offers two half-credit courses in Business Russian, 36.120★ and 36.121★, to assist the university student and the businessman to acquire in a comparatively short time the linguistic knowledge, the business terminology and language skills needed for commercial transactions. The two half-credits concentrate on essential linguistic features of Russian as used in commercial documents, and students will advance to a level enabling them to read, translate and write material in areas related to trade and commerce. No previous knowledge of Russian is necessary to enrol in Russian 36.120★. Students with some knowledge of Russian may enrol directly in Russian 36.121★ with the permission of the instructor.

3. *Russian Literature Courses In English Translation*: The department offers one full course, Russian 36.260, and two half courses, Russian 36.360★ and 36.361★, in which Russian literary works are read and studied in English translations. Conducted entirely in English, these courses are designed for all students wishing to broaden their knowledge of Russian literature and culture. The courses offer opportunities for both a comprehensive survey and a detailed examination of Russian authors.

4. *Other Slavic Languages*: The department also offers additional options in other Slavic languages: (a) A basic sequence of Ukrainian 36.116 and 36.216 (beginning and advanced);

(b) Bulgarian with an introduction to Macedonian, Old Slavonic, and Serbo-Croat, offered on request if an instructor is available. Hungarian is also offered. See comments, under Slavic and East European Languages (p. 270).

5. *East-European Literature in English Translation*: The department offers Russian 36.290, Twentieth-Century East-European Literature in English Translation, as a survey of the recent literature of Czechoslovakia, Poland and Hungary. All texts are read in English translation. This course is centered around authors whose concerns extend beyond national boundaries, who are politically and socially revealing, and artistically innovative. The specific Calendar description should be consulted.

Laboratory Facilities

The University's language laboratory, provides facilities for drill in aural comprehension. Students may take extra practice in periods in open hours. The language laboratory is used in the following courses: Russian 36.100, 36.150, Ukrainian 36.116.

Departmental Reading Lists

Departmental reading lists will be available from the Secretary, Room 1301, Arts Tower (telephone 231-4488/89). These reading lists give additional information about courses, including texts, instructors, and, as available, the scheduling of courses.

Courses Offered

Russian 36.100

introductory Russian

Introductory course, the aim of which is to ensure an adequate grasp of the mechanics of the language and basic skills in oral comprehension. Reading of texts. One hour per week devoted exclusively to Russian conversation in class. Oral practice in the language laboratory.

Day and Evening divisions: Four hours a week plus one laboratory period a week.

Russian 36.110

Scientific Russian

This course is designed to meet the needs of all students in the social and natural sciences, and engineering, and of graduate students in any year who require a reading knowledge of Russian scientific or technical literature. It includes the essentials of grammar, a basic vocabulary, and the reading of simple texts.

Day division: Three hours a week.

Russian 36.120★

Business Russian I

Introductory sequence of the Business Russian course. Essential linguistic features of Russian as used in business and commerce documents: business letters, offers, orders and confirmations, contracts, complaints, advertising and enquiries.

Evening division, First term: Three hours a week.

Russian 36.121★

Business Russian II

Continuation of the sequence of Business Russian I. The course consists of reading, translation, discussion and writing in Russian of documents, reports and articles in the following related areas: the economic geography of the USSR and Eastern Europe, commercial relations between the USSR and Canada, Soviet trade organizations, trade exhibitions, banking in Eastern Europe.

Prerequisite: Russian 36.120★ or an equivalent competence in essentials of Russian.

Evening division, Second term: Three hours a week.

Russian 36.150

Intermediate Russian

Continuation of the basic Russian sequence. Grammar studies, composition, oral drill, reading of selected poetry and prose.

Prerequisite: Russian 36.100 or equivalent.

Day and Evening divisions: Three hours a week, plus one laboratory period.

Russian 36.200

Advanced Russian

Continuation of the basic Russian sequence. Introduction to prose composition and essay writing; further development of comprehension and self-expression in Russian.

Prerequisite: Russian 36.150 or equivalent.

Day division: Three hours a week.

Russian 36.201★

Russian Conversation

Conversation and discussion of current topics with special emphasis on everyday Russian. Occasional written work.

Prerequisite: Russian 36.150, or permission of the department (may be taken concurrently with Russian 36.150).

Day division, First term: Three hours a week.

Russian 36.203

Russian Grammar

A systematic review of Russian grammar: selected problems of phonetics and phonology, morphology and syntax, with an introduction to structural and transformational models of modern Russian.

Prerequisite: Russian 36.150 or equivalent.

Evening division: Three hours a week.

Russian 36.260

Russian Literature in English Translation—Nineteenth and Twentieth Centuries

A study of selected works of Russian and Soviet literature in the general context of European literature and against their social and political background. It includes works by Pushkin, Gogol, Turgenev, Leo Tolstoy, Dostoevsky, Chekhov, Gorky, Sholokhov, Pasternak, Solzhenitsyn.

Day division: Three hours a week.

Russian 36.290

Twentieth-Century East-European Literature in English Translation

This course focuses on the literature of three countries: Czechoslovakia, Hungary and Poland. Following an introduction to the pertinent literary traditions, representative twentieth-century works are treated in detail. Post-World War II developments receive further emphasis. All texts are read in English translations. This course does not count as a credit in Russian, but can serve as an arts option for all students.

Not offered 1982-83.

Russian 36.300

Russian Style and Composition

Continuation of the basic Russian sequence. Introduction to stylistics and expressive writing. Analysis of semantic and structural peculiarities of modern Russian.

Prerequisite: Russian 36.200 or equivalent.

Evening division: Three hours a week.

Russian 36.301★

Advanced Russian Conversation

An advanced sequel to Russian 36.201★. May be taken concurrently with Russian 36.200.

Prerequisite: Russian 36.201★ or permission of the department.

Day division, Second term: Three hours a week.

Russian 36.303

Russian Translation

A course in contrastive grammar and stylistics of Russian and English (examples from French will be offered for students with French, but French is not a required language for the course); studies in the theory of translation with extensive exercises in text translation from and into Russian.

Prerequisite: Russian 36.203 or equivalent.

Day division: Three hours a week.

Russian 36.335

Major Authors: Pushkin to Chekhov

A study of selected major authors of the nineteenth century including Pushkin, Gogol, Turgenev, Dostoevsky, Tolstoy and Chekhov. Emphasis is placed on the reading of literary texts in an historical context and on the artistic developments in poetry and fiction throughout the period.

Prerequisite: A Russian course at the 200 level, or permission of the department.

Day division: Three hours a week.

Russian 36.355

Major Authors: Gorky to Solzhenitsyn

A study of selected major authors of the twentieth century, including Gorky, Babel, Blok, Mayakovsky, Bulgakov, Zamyatin, Sholokhov and Solzhenitsyn. Emphasis is placed on the reading of literary texts in the context of political and social change and on the study of literary trends, themes and experiments.

Prerequisite: A Russian course at the 200 level, or permission of the department.

Not offered 1982-83.

Russian 36.360★

Special Topic: Dostoevsky to Chekhov (In English Translation)

Study of particular authors, movements or themes, concentrating on the work of Dostoevsky, Tolstoy and Chekhov. The specific course outline may vary from year to year, but it will regularly focus on the relation between imaginative writing and society. All texts are read in English. This course does not count as a credit in Russian but can serve as an arts option for all students.

Prerequisite: At least second-year standing or permission of the department.

Evening division, First term.

Russian 36.361★

Special Topic: The Revolution and After (In English Translation)

Study of particular authors, movements or themes, concentrating on the period of the Revolution and its aftermath. The specific course outline may vary from year to year, but it will regularly focus on the relation between imaginative writing and society. All texts are read in English. This course does not count as a credit in Russian but can serve as an arts option for all students.

Prerequisite: At least second-year standing or permission of the department.

Evening division, Second term.

Russian 36.399

Introduction to Methods of Research

Tutorial on topics of Russian or comparative language and literature, aimed at training in methods of scholarly research and Slavic bibliography.

Russian 36.405

Tutorial: History of the Russian Language

A tutorial on the historical development of Russian from Old Slavic to the present, based on studies in historical grammar and reading of selected medieval and modern texts.

Prerequisite: Russian 36.203 or permission of the department.

Russian 36.435

Tutorial: Special Topic (Literature)

A tutorial offering advanced study of a literary topic in the area of literary history, criticism or theory, to be arranged in consultation with a member of the department.

Prerequisite: A Russian course at the 300 level or permission of the department.

Russian 36.445

Tutorial: Special Topic (Drama)

A tutorial offering concentrated study of a topic related to Russian dramatic literature and theatre, to be arranged in consultation with a member of the department.

Prerequisite: A Russian course at the 300 level or permission of the department.

Russian 36.455

Tutorial: Special Topic (Post-1917 Period)

A tutorial offering study of a topic related to the literature of the Revolution and after, to be arranged in consultation with a member of the department.

Prerequisite: A Russian course at the 300 level or permission of the department.

Russian 36.493★

Translation Tutorial I

This course is intended for students in the Institute of Soviet and East European Studies, although other students may enrol with the permission of the department. It offers work in translation to and from Russian, and the objectives of the course are co-ordinated with the specific needs of students in the institute.

Russian 36.494★

Translation Tutorial II

A continuation of Russian 36.493★.

Russian 36.495

Tutorial: Special Topic (Language)

A tutorial on topics of language or linguistics, providing individual or small group study. For students in the Translation Option, it will be a practicum in translation with analysis and criticism of selected professional translations.

Prerequisite: Permission of the department.

Russian 36.496★

Tutorial: Special Subject

A tutorial on a selected literary or language topic, providing individual or small group study.

Prerequisite: Permission of the department.

Russian 36.499

Honours Essay

An option for final-year Honours students. For students in the Translation Option, an annotated translation of a substantial piece of text, with oral defence before a panel consisting of a member of the Russian Department, a member of the Linguistics Department, and a professional translator.

■ **Ukrainian**

Ukrainian 36.116

Introductory Ukrainian

An introductory course designed to give students the fundamentals of written and spoken Ukrainian. Grammar, reading, and oral practice. Language laboratory. This course does not count as a credit in Russian, but can serve as an arts option for all students.

Day division: Three hours a week and laboratory session.

Ukrainian 36.216

Advanced Ukrainian

Grammar review, composition, advanced conversation. Reading of selected prose and poetry representing the most typical features of Ukrainian culture in the nineteenth and twentieth centuries. This course does not count as a credit in Russian, but can serve as an arts option for all students.

Prerequisite: Ukrainian 36.116 or permission of the department.

Evening division: Three hours a week.

■ **Slavic and East-European Languages**

Slavic 36.390

Slavic or Hungarian Language Tutorial

A study in a Slavic or East-European language, other than Russian, which may be useful for research information or translation activities to any graduate or undergraduate student. Students wishing to study Ukrainian beyond the Ukrainian 36.216 level (Advanced Ukrainian) may enrol in this tutorial.

The course consists of a two-hour meeting per week with an instructor, and it may require intensive laboratory work. The choice of the language in each particular year will depend on the students' demand and the availability of the instructor. This course does not count as a credit in Russian, but can serve as an arts option for all students.

Prerequisite: Russian 36.150 or 36.110 or Ukrainian 36.216 or equivalent or permission of the department.

Note:

Students interested in Slavic literatures should note the entry for Russian 36.290, Twentieth-Century East-European Literature in English Translation.

Officers of Instruction

Chairman

Gordon Irving

Assistant Chairman

Francis G. Vallee

Co-ordinator of Graduate Program

John de Vries

Co-ordinator of Honours Anthropology Program

Jacques Chevalier

Co-ordinator of Honours Sociology Program

Florence Hughes

Co-ordinator of Interdisciplinary Major Program

Valda Blundell

Professors

John de Vries

Dennis P. Forcese

Muni Frumhartz

John Harp

Gordon Irving

Judah Matras

Bruce A. McFarlane

Gertrud Neuwirth

Terrance Nosanchuk

Adam Podgorecki

Stephen Richer

Victor F. Valentine

Francis G. Vallee

Donald Whyte

Associate Professors

Valda Blundell

Monica Boyd

Hyman Burshtyn

Jacques Chevalier

Wallace Clement

John Cove

Bruce Cox

Charles Gordon (*Joint Appointment, School of Architecture*)

Fred K. Hatt

Charles Laughlin

Hugh McRoberts

Joseph Manyoni

John Myles

Iain Prattis

Derek Smith

Allan D. Steeves

Ian Taylor

Assistant Professors

Colin Farmer

Florence J. Hughes

Barclay Johnson

Jared Keil

Dennis Olsen

Caryll Steffens

Departmental Administrator

Beverley Cruikshank

General Information

The Department of Sociology and Anthropology offers three undergraduate programs:

Major in Sociology-Anthropology

Honours in Anthropology

Honours in Sociology

All of these programs can be taken either as a principal concentrations or in combination with other disciplines. Details of these programs are outlined below.

The several types of courses offered by the department are indicated by the following numerical prefixes:

53 Sociology

54 Anthropology

56 Sociology-Anthropology

Providing they meet the requirements of the particular program for which they are registered, students may select their courses from any or all of these.

Major Programs

Major Program

1. Students in the Major program must successfully complete *six* courses in the sociology-anthropology field, including those courses listed below:

(a) one of Sociology 53.100, Anthropology 54.100 or Sociology-Anthropology 56.100 (See Note below);

(b) Sociology-Anthropology 56.200★;

(c) *either* Sociology 53.201★ or Anthropology 54.201★;

(d) one chosen from: Sociology-Anthropology 56.305, Sociology 53.306, Anthropology 54.310;

(e) one further credit in sociology and/or anthropology at the 300 level.

2. Students may not count more than nine credits, or their equivalent, in sociology and/or anthropology toward a Major B.A. Degree.

3. Final-year students with the required standing, may be given permission to take a course at the Fourth-year level. It is also expected that some work will be taken in related disciplines in the social sciences.

4. Students are expected to maintain a minimum average of C- in the Major program.

The entire course program should be worked out in consultation with the Co-ordinator of Majors. Students are strongly advised to consult the Undergraduate Co-ordinator regularly throughout their degree studies to ensure that they are observing departmental and University requirements.

Note:

A student may take both Sociology 53.100 and Anthropology 54.100 but only *one* may be counted toward the Major degree. If Sociology-Anthropology 56.100 has been taken, Sociology 53.100 or Anthropology 54.100 may not be taken.

Combined Major Programs

Students combining sociology-anthropology with another discipline must successfully complete *four* credits including those courses listed below:

1. One of Sociology 53.100, Anthropology 54.100, or Sociology-Anthropology 56.100 (See *Note* below);
2. *Either* Sociology-Anthropology 56.200★ and Sociology 53.201★ or Anthropology 54.201★ or one course chosen from: Sociology-Anthropology 56.305, Sociology 53.306, Anthropology 54.310;
3. One further credit in sociology and/or anthropology at the 300 level.

Combined Major programs should be worked out in consultation with departments concerned, and may include other requirements additional to those listed above.

Note:

A student may take both Sociology 53.100 and Anthropology 54.100 but only *one* may be counted toward the Major degree. If Sociology-Anthropology 56.100 has been taken, Sociology 53.100 or Anthropology 54.100 may not be taken.

Honours Programs

General

Honours programs may be entered from the Honours First year in the Social Sciences (see p. 96) or by transfer from the Major course if the appropriate standing has been attained (C+). Students taking Honours in sociology or anthropology are expected to meet the general University regulations governing the degree and to fulfill certain additional requirements depending on the program selected. The Practicum or the Essay will be considered as a course in determining a student's final standing. The following programs are available.

Sociology

The entire selection of courses is to be worked out in close consultation with the Co-ordinator of Honours (Sociology) or members of the Honours Program Committee (Sociology). The requirements are:

1. Nine credits, or their equivalent, in sociology and/or anthropology, including:
 - (a) one of Sociology 53.100, Anthropology 54.100, Sociology-Anthropology 56.100;
 - (b) Sociology-Anthropology 56.200★ and one of either Sociology 53.201★ or Anthropology 54.201★; plus Sociology 53.370;
 - (c) Sociology-Anthropology 56.305 and Sociology 53.306 (one of these should be taken in the Second year);
 - (d) two half-course seminars or one full-course seminar at the 400 or 500 level;
 - (e) Sociology 53.495 (Honours Practicum) or 53.498 (Honours Essay);
 - (f) two additional full courses or their equivalent, within the department.
2. A Minor consisting of three credits in one of the following: economics, geography, history, philosophy, political science or psychology. Alternative Minors will also be considered;
3. It is recommended that students take some course involving formal reasoning during their first two years. This may be selected from among Mathematics 69.107★ or 69.127★ or Philosophy 32.201★.
4. A maximum of twelve credits in sociology and anthropology may be counted toward the degree of B.A. with Honours in Sociology;
5. A total of twenty credits or their equivalent is required.

Students are strongly advised to consult the undergraduate co-ordinator regularly throughout their degree studies to ensure that they are observing departmental and University requirements.

Anthropology

The entire selection of courses is to be worked out in close consultation with the Co-ordinator of Honours (Anthropology) or members of the Honours Program Committee (Anthropology). The requirements are:

1. Nine credits, or their equivalent, in Sociology and/or Anthropology, including:
 - (a) one of Sociology 53.100, Anthropology 54.100, Sociology-Anthropology 56.100;
 - (b) Sociology-Anthropology 56.200★ plus either Anthropology 54.201★ or Sociology 53.201★, Anthropology 54.310, 54.410 and 54.495;
 - (c) two additional half course seminars or one full-course seminar at the 400 or 500 level;
 - (d) three additional credits, or their equivalent, within the department.
2. A maximum of twelve credits in sociology and anthropology may be counted toward the degree of B.A. with Honours in Anthropology.
3. A total of twenty credits or their equivalent is required.

Students are strongly advised to consult the undergraduate co-ordinator regularly throughout their degree studies to ensure that they are observing departmental and University requirements.

Combined Honours in Sociology

The entire selection of courses is to be worked out in close consultation with the Co-ordinator of Honours (Sociology) or members of the Honours Program Committee (Sociology), as well as with the equivalent person(s) in the other discipline.

Students are strongly advised to consult the undergraduate co-ordinator regularly throughout their degree studies to ensure that they are observing departmental and University requirements.

Combined Honours with a considerable number of disciplines is possible and will be worked out upon request. The following programs are examples:

Combined Honours in Sociology and Political Science

Required courses in sociology and/or anthropology include:

1. Sociology 53.100 or Anthropology 54.100 or Sociology-Anthropology 56.100;
2. One of the following methods sequences:
 - (a) In the Second year, Political Science 47.270, in the Third year, Sociology 53.370; or
 - (b) In the Second year, Sociology-Anthropology 56.200★ plus one of Sociology 53.201★ or Anthropology 54.201★; in the Third year, Political Science 47.470.
3. Sociology-Anthropology 56.305 or Sociology 53.306 (if the Honours Essay is written in Sociology, 53.306 is recommended);
4. If the Honours Essay is written in sociology: Sociology 53.495 or 53.498, and two additional credits in sociology, one of which must be taken at the 400 or 500 level. If the Honours Essay is written in political science: three additional credits in sociology, one of which must be taken at the 400 or 500 level.

Note:

Students should also consult the statement of the Department of Political Science.

Combined Honours in Sociology and Economics

Required courses in sociology and/or anthropology include:

1. one of Sociology 53.100, Anthropology 54.100, Sociology-Anthropology 56.100;
2. Sociology-Anthropology 56.200★ and either Sociology 53.201★ or Anthropology 54.201★, followed by Sociology 53.370 or Economics 43.220;

3. Sociology-Anthropology 56.305 or Sociology 53.306, (if the Honours Essay is written in Sociology, 53.306 is recommended);

4. if the Honours Essay is written in sociology: Sociology 53.495 or 53.498; and two additional credits in sociology, one of which must be at the 400 or 500 level. Otherwise, three additional courses in sociology are required, one of which must be at the 400 or 500 level.

Combined Honours in Sociology and Journalism

Students may select a course pattern which will lead, at their option, to either the degree of B.A. with Combined Honours in journalism and sociology, or B.J. with sociology. At the end of the Third year, students will elect to write their Honours Essay in either sociology or journalism. Should students select sociology, they will be awarded the degree of B.A. upon graduation. Students selecting journalism will be awarded the degree of B.J. (with Sociology) upon graduation.

The Combined Honours program in sociology and journalism requires a total of twenty-one credits. The required courses in the sociology and/or anthropology component of this program are:

1. one of Sociology 53.100, Anthropology 54.100, Sociology-Anthropology 56.100;
2. Sociology-Anthropology 56.200★; either Sociology 53.201★ or Anthropology 54.201★; and Sociology 53.370;
3. Sociology-Anthropology 56.305 or Sociology 53.306, (if the Honours Essay is written in Sociology, 53.306 is recommended);
4. if the Honours Essay is written in journalism, students are required to successfully complete three additional courses in sociology (not including Sociology-Anthropology 56.211), one of which must be at the 400 or 500 level.

Combined Honours in Sociology and Law

The required credits in the sociology and/or anthropology component of this program are:

1. one of Sociology 53.100, Anthropology 54.100, Sociology-Anthropology 56.100;
2. Sociology-Anthropology 56.200★; and either Sociology 53.201★ or Anthropology 54.201★;
3. Sociology-Anthropology 56.305 or Sociology 53.306, (if the Honours Essay is written in Sociology 53.306 is recommended);
4. if the Honours Essay is written in sociology: Sociology 53.495 or 53.498; and three additional courses in Sociology, one of which must be at the 400 or 500 level. If the Honours Essay is written in law, students should take four additional courses in sociology, one of which must be at the 400 or 500 level.

Combined Honours in Sociology and Psychology

Required credits in sociology include:

1. Sociology 53.100 or Anthropology 54.100 or Sociology-Anthropology 56.100;
2. Sociology-Anthropology 56.200★, *and* either Sociology 53.201★ or Anthropology 54.201★;
3. Sociology-Anthropology 56.305 or Sociology 53.306 (if the Honours Essay is written in Sociology, 53.306 is recommended);
4. If the Honours Essay is written in sociology: Sociology 53.370; 53.495 or 53.498; and two additional courses in sociology, one of which must be taken at the 400 or 500 level. If the Honours Essay is written in psychology: Psychology 49.305 and four additional courses in sociology, one of which must be taken at the 400 or 500 level.

Note:

Students should also consult the statement of the Department of Psychology.

Combined Honours in Anthropology

Students intending to enter an Honours program combining anthropology with another discipline should take one of Sociology 53.100, Anthropology 54.100, Sociology-Anthropology 56.100 and the introductory course in the other discipline in their First year. A minimum of six credits in Anthropology and/or Sociology is required. The entire selection of courses is to be worked out in close consultation with the Coordinator of Honours (Anthropology) or members of the Honours Program Committee (Anthropology) as well as the equivalent person(s) in the other discipline.

Combined Honours with a considerable number of other disciplines is possible and will be worked out upon request.

Ordinarily, the requirements will include:

1. Six credits in Anthropology and/or Sociology including:
 - (a) one of Sociology 53.100, Anthropology 54.100, Sociology-Anthropology 56.100;
 - (b) Sociology-Anthropology 56.200★, *and* either Sociology 53.201★ or Anthropology 54.201★;
 - (c) Anthropology 54.310.
2. Where the Honours Practicum is taken in anthropology, Anthropology 54.410 and 54.495 plus one additional credit at the 400 or 500 level are required;
3. Where the Honours Essay is written in another discipline, three additional full courses, or equivalent, must be taken in sociology and/or anthropology, one of them at the 400 or 500 level.

Criminology and Corrections Concentration

For details see p. 129.

Graduate Program

The department offers studies leading to the following graduate degrees: M.A. in Sociology, M.A. in Social Anthropology and Ph.D. in Sociology. For further details consult the Graduate Studies and Research Calendar. Final-year Honours students may take one or more graduate seminars with the permission of the Department.

Prerequisite

The normal prerequisite for courses taken beyond the 100 level is one of Sociology 53.100, Anthropology 54.100, Sociology-Anthropology 56.100. An introductory course in sociology or anthropology taken at Carleton University prior to 1972-73, or at another university, will ordinarily satisfy the prerequisite requirement. Other students may be admitted with permission of the department.

Course-Related Tutorials

Students within the department may include among their courses one or more tutorials. Further information is available from the Office of the Chairman.

Written permission from the Chairman of the Sociology and Anthropology Department is necessary before registration in these courses can take place.

Courses Offered

Sociology 53.100

Introduction to Sociology

An introduction to the comparative study of social groups, classes and institutions. The main emphasis is on industrialized societies with special attention given to Canadian society.

Day and Evening divisions: Lectures and discussion three hours a week.

Anthropology 54.100

Introduction to Anthropology

An introduction to some of the major anthropological perspectives through which human cultures and behaviour can be understood. The comparative focus utilizes material drawn primarily from non-industrial societies.

Day and Evening divisions: Lectures and discussion three hours a week.

Sociology-Anthropology 56.100

Principles of Comparative Social Structure: Sociology and Anthropology

An introduction to the comparative study of human society from the parallel perspective of sociology and social anthropology. The principal focus is on continuity and change in the development of relatively simple and highly complex societies.

Precludes additional credit for Sociology 53.100 or Anthropology 54.100.

Day and Evening divisions: Lectures and discussion three hours a week.

Sociology-Anthropology 56.200★

Fundamentals of Social Research

An introduction to general issues in social research. Topics include the logic of research, problems of research design, fundamental techniques of data collection in sociology and anthropology, and problems in the ethics of research.

Precludes additional credit for Sociology-Anthropology 56.200 taken prior to 1978-79.

Prerequisite: One of Sociology 53.100, Anthropology 54.100, Sociology-Anthropology 56.100.

Day and Evening divisions, First term: Lectures and workshop three hours a week.

H. Burshtyn, T. Nosanchuk, C. Steffens

Sociology 53.201★

Introduction to Sociological Research

The study of qualitative and quantitative methods of data collection. Various techniques of data analysis are discussed.

Precludes additional credit for Sociology-Anthropology 56.200 taken prior to 1978-79.

Prerequisite: Sociology-Anthropology 56.200★.

Day and Evening divisions, Second term: Lectures and workshop three hours a week.

H. Burshtyn, J. deVries, S. Richer

Anthropology 54.201★

Introduction to Anthropological Research

The study of classic ethnographics from the anthropological literature. Both traditional and contemporary ethnographic methods are considered.

Precludes additional credit for Sociology-Anthropology 56.200 taken prior to 1978-79.

Prerequisite: Sociology-Anthropology 56.200★.

Day division, Second term: Lectures and workshop three hours a week.

C. Laughlin

Anthropology 54.206★

Cultural Adaptations and the Environment

This course examines various modes of subsistence in terms of their historical and ecological significance. Topics include the relationships between humans, social institutions and the natural environment in hunting and gathering, horticultural, and pastoral societies.

Precludes additional credit for Anthropology 54.206★ taken prior to 1980.

Prerequisite: One of Sociology 53.100, Anthropology 54.100, Sociology-Anthropology 56.100 or equivalent, or permission of the department.

Day division, First term: Lectures and discussion three hours a week.

B. Cox

Anthropology 54.207★

Anthropology and Human Adaptation

This course applies the principles of anthropological ecology to problems of the present day, such as overpopulation, environmental deterioration and malnutrition. Generally, it deals with cases arising from contact between tribal groups and industrial nation states.

Precludes additional credit for Anthropology 54.207★ taken prior to 1980.

Prerequisite: One of Sociology 53.100, Anthropology 54.100, Sociology-Anthropology 56.100 or equivalent, or permission of the department.

Evening division, Second term: Lectures and discussion three hours a week.

J. Chevalier

Sociology 53.210

Social Psychology

The study of the relationship between the individual and the social system. Emphasis is on integrating individual and social approaches. How does a group influence psychological processes (attitudes, cognitions, motivations, etc.)? How does an individual influence a group? Group processes such as socialization, symbolic interaction, coercion, conformity, leadership, cohesion, etc., are studied.

Prerequisite: One of Sociology 53.100, Anthropology 54.100, Sociology-Anthropology 56.100 or equivalent, introductory Psychology, or permission of the department.

Day division: Lectures and discussion three hours a week.

C. Steffens

Sociology-Anthropology 56.211

The Mass Media in Modern Society

An examination of the historical development and current operation of the major mass media, with a view to relating developments to the larger social structure. Emphasis is on the relationship between the media and the structure of Canadian society. (Also listed as Mass Communication 27.211.)

Prerequisite: One of Mass Communication 27.111, Sociology 53.100, Anthropology 54.100, Sociology-Anthropology 56.100 or permission of the department or school.

Offered by the School of Journalism.

Sociology-Anthropology 56.220

Canadian Society

The course focuses on the study of Canadian society as an ongoing social system. Alternative theoretical perspectives are developed and examined for the interpretation they provide of recurrent social issues. Special attention is given to persistence and change in regional, ethnic, class and sex-role differences.

Prerequisite: One of Sociology 53.100, Anthropology 54.100, Sociology-Anthropology 56.100 or equivalent or permission of the department.

Day and evening divisions: Lectures and discussion three hours a week.

M. Frumhartz, D. Whyte

Anthropology 54.225

Prehistoric Anthropology, Cultural and Biological Evolution of Humans

An examination, from an evolutionary point of view, of the physical anthropology and archeology of early humans, their origins, the development of technology and of complex institutions, and the nature of racial differences.

Prerequisite: One of Sociology 53.100, Anthropology 54.100, Sociology-Anthropology 56.100 or equivalent, or permission of the department.

Evening division, Lectures two hours a week and workshop one hour a week.

V. Blundell

Anthropology 54.230

Social Systems of Non-Western Societies

A study of social anthropology with an emphasis on cross-cultural comparisons of a sample of world societies in terms of kinship, political, economic, religious and symbolic systems.

Prerequisite: One of Sociology 53.100, Anthropology 54.100, Sociology-Anthropology 56.100 or equivalent, or permission of the department.

Day division: Lectures and discussion three hours a week.

I. Prattis

Sociology-Anthropology 56.235

Ethnic Group Relations

An anthropological and sociological study of minority groups and of ethnic and "race" relations in multi-cultural societies. The course focuses on intergroup processes within a comparative framework.

Prerequisite: One of Sociology 53.100, Anthropology 54.100, Sociology-Anthropology 56.100 or equivalent, or permission of the department.

Day division: Lectures and discussion three hours a week.

J. Manyoni

Sociology-Anthropology 56.241

Kinship, Marriage and the Family

The course entails a cross-cultural analysis of kinship and kin groups, an examination of the historical development of the family in western society and a general

survey of contemporary family life and its relationship to the total society.

Prerequisite: One of Sociology 53.100, Anthropology 54.100, Sociology-Anthropology 56.100 or equivalent, or permission of the department.

Day division: Lectures and discussion three hours a week.

Sociology-Anthropology 56.243

Religion and Society

A broad survey of religious institutions, with comparative and historical emphases. Examination is made of the major social, cultural, and psychological theories of religion, as well as of the methodological problems associated with the subject matter. Attention is also placed on a range of topics such as totemism, social change, utopian communities, secularization, and the relationship of religion to other social institutions and processes.

Prerequisite: One of Sociology 53.100, Anthropology 54.100, Sociology-Anthropology 56.100 or equivalent, or permission of the department.

Day division: Lectures and discussion three hours a week.

Sociology 53.245

The Sociology of Work: Occupations and Professions

A study of the sociological aspects of work, with particular emphasis on the historical development and contemporary organization of occupations and professions, career patterns and recruitment, and manpower problems in developed and developing countries.

Prerequisite: One of Sociology 53.100, Anthropology 54.100, Sociology-Anthropology 56.100 or equivalent, or permission of the department.

Day division: Lectures and discussion three hours a week.

C. Gordon

Sociology 53.246★

Industrial Sociology

An enquiry into the development, structure and prospects of industrial society and post-industrial society, including the relation of industrial institutions to the rest of society, and the internal organization of industrial institutions, including problems of management, labour and union relations.

Prerequisite: One of Sociology 53.100, Anthropology 54.100, Sociology-Anthropology 56.100 or equivalent, or permission of the department.

Not offered 1982-83.

Sociology 53.247

Women in Society

An enquiry into the historical and contemporary roots of sex-role determination. A comparative analysis of the position of women in various social formations is attempted, in conjunction with an examination of various theoretical perspectives concerning women's societal role. Emphasis is on the Canadian context.

Prerequisite: One of Sociology 53.100, Anthropology 54.100, Sociology-Anthropology 56.100 or equivalent, or permission of the department.

Day division: Lectures and discussion three hours a week.

M. Boyd

Anthropology 54.248★

The Anthropology of Sex Roles

An examination of male and female roles and status in relation to societal factors, such as economics, decision-making, and ideology. Emphasis is on the study of women in traditional, and changing, non-western pre-industrial societies.

Prerequisite: One of Sociology 53.100, Anthropology 54.100, Sociology-Anthropology 56.100 or equivalent, or permission of the department.

Not offered 1982-83.

Sociology 53.251★

Introduction to Population Studies

An introduction to the basic principles of demography. Past and present population growth, and the determinants of population growth, are examined. Interrelations among demographic, social, cultural and economic factors are investigated. Where possible, Canadian demographic material is discussed.

Prerequisite: One of Sociology 53.100, Anthropology 54.100, Sociology-Anthropology 56.100 or equivalent, or permission of the department.

Day division, First term: Lectures and discussion three hours a week.

M. Boyd

Sociology-Anthropology 53.252★

Sociology of Aging and the Elderly

An investigation of the implications of population aging for Canadian social structure and the major issues, theories and research regarding aging and the elderly in contemporary society. The implications of Canada's changing age structure for such institutions as the economy, the polity and the family are examined in a comparative perspective. Social policy issues related to aspects of the aging process such as retirement and pensions are discussed. Special attention is given to a detailed examination of the composition and living conditions of Canada's elderly.

Prerequisite: One of Sociology 53.100, Anthropology 54.100, or Sociology-Anthropology 56.100 or equivalent or permission of the department.

Day division, First term: Lecture and discussion three hours a week.

Sociology-Anthropology 56.253★

Introduction to Human Ecology

The course focuses on interrelationships among population, organization, environment and technology, and on the relationship between man and the natural environment from the perspective of resource use, management and policy. (When this course is given in more than one section, the sections are likely to differ in the disciplinary approach that is emphasized.)

Prerequisite: One of Sociology 53.100, Anthropology 54.100, Sociology-Anthropology 56.100 or equivalent, or permission of the department.

Not offered 1982-83.

Sociology 53.254★

Urban Sociology

An examination of issues related to man and the urban environment, including the historical process of urbanization, the rural-urban transition, and the diffusion of urban values and life styles. Some attention is paid to contemporary urban problems, such as urban renewal, pollution and the pressures of the urban environment on social institutions.

Prerequisite: One of Sociology 53.100, Anthropology 54.100, Sociology-Anthropology 56.100 or equivalent, or permission of the department.

Not offered 1982-83.

Sociology 53.255★

Sociology of Deviance

An analysis of the relation of deviant behaviour to the functioning of social systems: conditions and types of deviance from the institutional order, the evasion of rules, the social roles of deviants, the structure of control, punishment and cure.

Prerequisite: One of Sociology 53.100, Anthropology 54.100, Sociology-Anthropology 56.100 or equivalent, or permission of the department.

Day division, First term; Evening division, Second term.

C. Farmer, I. Taylor

Sociology 53.256★

Police in Society

An examination of the organization and activities of the police in industrialized societies. Particular attention is devoted to Canadian information, and the themes of social control, police discretion, and the relations of police to a democratic society.

Prerequisite: One of Sociology 53.100, Anthropology 54.100, Sociology-Anthropology 56.100. Closed to students who were enrolled in Sociology-Anthropology 56.286★ in 1975 or 1976.

Day division, First term; Evening division, Second term.

D. Forcese

Sociology 53.260★

Community

The community is studied as a localized social system in a larger social setting. This involves analysis of demographic and ecological factors as well as a variety of community based institutions. Special attention is given to decision-making, community planning and development.

Prerequisite: One of Sociology 53.100, Anthropology 54.100, Sociology-Anthropology 56.100 or equivalent, or permission of the department.

Day division, Second term: Lectures and discussion three hours a week.

J. Harp

Sociology 53.270

Criminology

The study of criminal behaviour in modern society with special emphasis on interdisciplinary theories of causation, the relationship of crime and the social structure, and policies and programs by which society reacts to crime.

Prerequisite: One of Sociology 53.100, Anthropology 54.100, Sociology-Anthropology 56.100 or equivalent or permission of the department.

Day and Evening divisions: Lectures and discussion three hours a week.

I. Taylor

Sociology-Anthropology 56.285★

Selected Topics

Selected topics in sociology and/or anthropology, not ordinarily treated in the regular course program. The choice of topics varies from year to year. *Topic for 1982-83: The Canadian Working Class*: This course applies theoretical and research considerations concerning the working classes in other nations to the working class in Canada. Topics to be considered are the following: typical life cycles and work experiences by various economic locations and work settings; political attitudes and behaviour; education; life style and patterns of consumption; health (accidents and disease); aspects of class consciousness; perception of power structures; working class leadership; ideologies; divisions within the working class; sources of legitimation and their acceptance or rejection.

Prerequisite: One of Sociology 53.100, Anthropology 54.100, Sociology/Anthropology 56.100 or equivalent, or permission of the department.

Day division, First term: Lectures and discussion three hours a week.

D. Olsen

Sociology-Anthropology 56.286★

Selected Topics

Selected topics in Sociology and/or Anthropology, not ordinarily treated in the regular course program.

The choice of topics varies from year to year.

Not offered 1982-83.

Sociology-Anthropology 56.291★ and 56.292★

Course-Related Tutorials

See explanatory note on p. 274.

Anthropology 54.301★

Phonetics

Offered as Linguistics 29.301★

Anthropology 54.302★

Phonology

Offered as Linguistics 29.302★

Anthropology 54.303★

Language Analysis

Offered as Linguistics 29.303★

Anthropology 54.304★

Grammar

Offered as Linguistics 29.304★

Sociology-Anthropology 56.305

The Development of Sociological and Anthropological Thought

The development of sociological and anthropological thought since the end of the eighteenth century. Various theoretical approaches are placed within their historical, social and intellectual contexts. The writings of key figures such as Comte, Spencer, Marx, Durkheim, Weber, Malinowski and Radcliffe-Brown are examined and analysed as illustrations of the development of theoretical approaches in both disciplines.

Precludes additional credit for Sociology-Anthropology 56.203 taken prior to 1975-76.

Prerequisite: One of Sociology 53.100, Anthropology 54.100, Sociology-Anthropology 56.100 or equivalent, or permission of the department.

Day division: Lectures and discussion three hours a week.

J. Cove

Sociology 53.306

Contemporary Theoretical Sociology

Consideration is given to the major contemporary theories, such as structural functionalism, social behaviourism, symbolic interactionism, conflict theory and the theory of social action. Apart from the principal substantive issues raised by each of these theories, certain methodological problems associated with the formulation of theories and the relations of theory to research are discussed.

Precludes additional credit for Sociology 53.300 taken prior to 1975-76.

Prerequisite: One of Sociology 53.100, Anthropology 54.100, Sociology-Anthropology 56.100 or equivalent, or permission of the department.

Evening division: Lectures and discussion three hours a week.

G. Neuwirth

Anthropology 54.310

Theory and Methodology in Anthropology

A consideration of the nature of anthropological theory and of explanation in the anthropological context. Some attention is devoted to previous formulations relevant to contemporary anthropology, but the emphasis is on the contemporary formulation of cultural ecology, ecological determinism, evolutionism and structural-functionalism. Special attention is given to the interdependence of theory and methods of research.

Prerequisite: One of Sociology 53.100, Anthropology 54.100, Sociology-Anthropology 56.100 or equivalent, or permission of the department.

Day division: Lectures and discussion three hours a week.

D. Smith

Sociology-Anthropology 56.311

Advanced Studies of the Mass Media

An examination of the philosophical and theoretical foundations of mass-communication studies. The course is an analysis of the content of selected theories with a view to assessing the contributions they make to the understanding of mass communication. (Also listed as Mass Communication 27.311.)

Prerequisite: One of Mass Communication 27.211, Journalism 28.200, Sociology 53.100, Anthropology 54.100, Sociology-Anthropology 56.100 or permission of the department or school.

Day division: Lectures and discussion three hours a week.

Offered by the School of Journalism.

Sociology 53.312★

Science and Society

An historical and comparative approach to the analysis of science and society. Such topics as the institutionalization and professionalization of science; the organizational context of scientific work; relations between science and other institutions; the norms of science, and the role and career of the scientist are considered.

Prerequisite: One of Sociology 53.100, Anthropology 54.100, Sociology-Anthropology 56.100, or equivalent, or permission of the department.

Not offered 1982-83.

Sociology 53.315

Sociology of Education

An examination of educational institutions; their interplay with one another and with other social institutions; the structure of educational opportunity; the school and university seen as organizations; individual and social effects of education; the sociology of learning. The approach is generally comparative and includes a consideration of contemporary critiques of the educational system.

Prerequisite: One of Sociology 53.100, Anthropology 54.100, Sociology-Anthropology 56.100 or equivalent, or permission of the department.

Day division: Lectures and discussion three hours a week.

M. Frumhartz

Anthropology 54.317★

Visual Anthropology

This course examines the anthropological experience as reflected in film. A number of methodological problems are considered, including selectivity, bias, the effect of the observer's presence, problems in reconstructing past events in film and of using photographs and photo archives in research.

Prerequisite: One of Sociology 53.100, Anthropology 54.100, Sociology-Anthropology 56.100 or equivalent or permission of the department.

Day division, Second term: Lectures and discussion three hours a week.

B. Cox

Anthropology 54.318★

The Prehistory of New World Indians and Eskimos

An examination of the prehistory of the New World, with particular emphasis upon North America. Topics covered include the peopling of the New World, the origins of agriculture and civilization in this area, and the regional culture histories of Indian and Eskimo societies. Special attention is given to the prehistoric roots of contemporary Indian and Eskimo societies.

Prerequisite: One of Sociology 53.100, Anthropology 54.100, Sociology-Anthropology 56.100 or equivalent, or permission of the department.

Day division, First term: Lectures and discussion three hours a week.

D. Smith

Anthropology 54.319★

The Ethnography of New World Indians and Eskimos

An examination of traditional New World Indian and Eskimo societies focusing upon their varying social and cultural adaptations. The course includes a survey of cultural and linguistic areas of North America. Consideration is given to social, economic, and political organization, as well as to the role of religion, mythology and art. Particular attention is paid to the native peoples of Canada.

Prerequisite: One of Sociology 53.100, Anthropology 54.100, Sociology-Anthropology 56.100 or equivalent, or permission of the department.

Sociology-Anthropology 56.320

French Canada and Quebec Society

An analysis of the economic, cultural and political aspects of present-day French Canada and Quebec society, with special reference to the interplay of three fundamental themes, i.e., class, culture and nation. Particular attention is also given to the diversity of theoretical perspectives and modes of analysis which prevail in the study of the contemporary situation. A reading knowledge of French is helpful, but is not a prerequisite for the course.

Prerequisite: One of Sociology 53.100, Anthropology 54.100, Sociology-Anthropology 56.100 or equivalent, or permission of the department.

Not offered 1982-83.

Anthropology 54.331★

Kinship and Culture

This course examines the nature of peoples' ideas concerning procreation, incest, and social relationships, and variations in descent, marriage, families, and kinship terminologies cross-culturally. The course also relates aspects of kinship to other societal institutions and ideologies.

Prerequisite: One of Sociology 53.100, Anthropology 54.100, Sociology-Anthropology 56.100 or equivalent, or permission of the department.

Not offered 1982-83.

Anthropology 54.332★

Political Anthropology

The focus of this course is on the social consequences of incorporating tribal or ethnic groups into a nation-state. It considers factors that make for political order in stateless societies; peace, ritual war, witchcraft and feud in such societies, and present-day problems such as aboriginal and native rights.

Prerequisite: One of Sociology 53.100, Anthropology 54.100, Sociology-Anthropology 56.100 or equivalent, or permission of the department.

Not offered 1982-83.

Anthropology 54.333★

Economic Anthropology

The course is concerned with the effects that decision strategies, production and distribution mechanisms have on social organization in primitive and peasant societies. Attention is given to the fundamental controversies which have divided scholars in economic anthropology. Particular issues of gift exchange, conspicuous consumption, market structure, etc., are examined in terms of their structural implications for other societal institutions and use of resources. Neo-Marxist approaches to economy, dependency and articulation tie economic anthropology to the sociology of development.

Prerequisite: One of Sociology 53.100, Anthropology 54.100, Sociology-Anthropology 56.100 or equivalent, or permission of the department.

Day division, Second term: Lectures and discussion three hours a week.

I. Prattis

Anthropology 54.334★

Symbolic Systems

The ability to create and use symbols is a defining characteristic of human thought. Anthropological perspectives are employed to examine symbols in a variety of contexts, such as magical and religious rituals, mythology, art, and politics. The focus is on how men understand themselves and their world through the medium of symbols.

Prerequisite: One of Sociology 53.100, Anthropology 54.100, Sociology-Anthropology 56.100 or equivalent, or permission of the department.

Day division, First term: Lectures and discussion three hours a week.

D. Smith

Anthropology 54.335★

Prehistoric Settlement Patterns

Archeological analyses of cultural choices regulating the utilization of space. The relation of settlement patterns to social, economic, and other factors is considered.

Prerequisite: One of Sociology 53.100, Anthropology 54.100, Sociology-Anthropology 56.100 or equivalent or permission of the department.

Not offered 1982-83.

Sociology 53.338

Social Response to the Built Environment

An examination from a social perspective of the interaction between humans and the buildings, towns and cities they construct. Emphasis is placed upon the functional, cognitive and expressive aspects of these interactions, at various levels of social organization and in various settings. Particular consideration is given to the institution, and to the nature of design as a social action.

Prerequisite: One of Sociology 53.100, Anthropology 54.100, Sociology-Anthropology 56.100 or equivalent, or permission of the department.

Day division: Lectures and discussion three hours a week.

C. Gordon

Sociology 53.345★

Stratification and Mobility

An examination of the principal theoretical and empirical questions in the study of social class and social mobility in complex societies. The bases and forms of inequality are examined with the aid of data from Canada, England, the United States, the Soviet Union, China, Japan and a number of other societies.

Prerequisite: One of Sociology 53.100, Anthropology 54.100, Sociology-Anthropology 56.100 or equivalent, or permission of the department.

Day division, First term: Lectures and discussion three hours a week.

Sociology 53.347★

Power

The principal concern of the course is the nature of power in human groups — its sources, forms and processes. Particular attention is paid to community and national elites and power structures.

Prerequisite: One of Sociology 53.100, Anthropology 54.100, Sociology-Anthropology 56.100 or equivalent, or permission of the department.

Not offered 1982-83.

Sociology 53.348★

Collective Behaviour and Social Movements

An enquiry into the process of collective action as part of social change at various levels. Topics discussed include crowds, fashions, labour, political and religious movements, rebellion and revolution.

Prerequisite: One of Sociology 53.100, Anthropology 54.100, Sociology-Anthropology 56.100 or equivalent, or permission of the department.

Day division, First term: Lectures and discussion three hours a week.

B. Johnson

Sociology 53.350★

Political Behaviour

An examination of sociological contributions to the study of political behaviour and of the relations between politics and the social structure, both in Canada and in other societies. Emphasis is placed upon

political socialization, the class basis of politics, conflict, mass movements and change.

Prerequisite: One of Sociology 53.100, Anthropology 54.100, Sociology-Anthropology 56.100 or equivalent, or permission of the department.

Day division, Second term: Lectures and discussion three hours a week.

B. Johnson

Sociology 53.351★

Methods of Population Analysis

An introduction to demographic techniques. Problems in the collection and analysis of population data, such as population censuses and vital registration. Emphasis is placed upon the application of "demographic" methods (e.g., cohort analysis) to other areas of sociological investigation.

Prerequisite: One of Sociology 53.100, Anthropology 54.100, Sociology-Anthropology 56.100 or equivalent, or permission of the department.

Not offered 1982-83.

Sociology 53.355

Bureaucracy and Society

An examination of the origins and development of large-scale bureaucratic structures in the industrialized nations. Particular attention is given to a critical evaluation of the bureaucratic thesis, namely that bureaucracy operating in the context of large-scale complex organizations is the distinguishing characteristic and ultimate basis of power in contemporary societies. This is accomplished by means of a detailed study of bureaucratic structures and processes in the modern business enterprise, the state and other public and private organizations.

Prerequisite: One of Sociology 53.100, Anthropology 54.100, Sociology-Anthropology 56.100 or equivalent, or permission of the department.

Not offered 1982-83.

Sociology-Anthropology 56.358

Conflict and Society

A comparative study of the strategies used by a number of western and non-western societies to resolve or promote conflict. Examination is made of the social conditions that generate conflict, and the ideas developed by different cultural groups to explain war, rebellion and revolution. Students are encouraged to do original research. (Sociology-Anthropology 56.200+ plus either Sociology 53.201★ or Anthropology 54.201★ or its equivalent in other departments are recommended as a suitable preparation for this course.)

Prerequisite: One of Sociology 53.100, Anthropology 54.100, Sociology-Anthropology 56.100 or equivalent, or permission of the department.

Day division: Lectures and discussion three hours a week.

J. Manyoni

Sociology-Anthropology 56.360

Social Change and Modernization

Comparative analysis of social change with particular emphasis on the processes associated with industrialization and their impact on social structure. Problems of internal and external obstacles to modernization; the relations of different social groups to economic development.

Prerequisite: One of Sociology 53.100, Anthropology 54.100, Sociology-Anthropology 56.100 or equivalent, or permission of the department.

Not offered 1982-83.

Anthropology 54.362

Contemporary Societies of Africa

Anthropological perspectives in the study of contemporary African societies. Special attention is paid to processes of change in traditional life styles through migration, urbanization and westernization. The main themes is modernization.

Prerequisite: One of Sociology 53.100, Anthropology 54.100, Sociology-Anthropology 56.100 or equivalent, or permission of the department.

Not offered 1982-83.

Sociology 53.370

Research Design and Data Analysis

An integrated approach to the problems involved in the analysis of quantitative data. Research design and procedure and statistical inference are studied. (Successful completion of Sociology-Anthropology 56.200★ plus either Sociology 53.201★ or Anthropology 54.201★ or equivalent in other departments is highly recommended as suitable preparation for this course.)

Prerequisite: One of Sociology 53.100, Anthropology 54.100, Sociology-Anthropology 56.100 or equivalent, or permission of the department.

Day division: Lectures and workshop four hours a week.

J. Myles

Anthropology 54.371★

Anthropological Linguistics

A review of theory and methods of anthropological linguistics. Emphasis is on the interdependence between language and culture. The study is undertaken on a comparative basis and includes both preliterate and literate groups.

Prerequisite: One of Sociology 53.100, Anthropology 54.100, Sociology-Anthropology 56.100 or equivalent, or permission of the department.

Not offered 1982-83.

Anthropology 54.372★

Psychological Anthropology

A cross-cultural study of certain psychological processes such as cognition, learning and perception; an examination of the interdependence between culture and personality.

Prerequisite: One of Sociology 53.100, Anthropology 54.100, Sociology-Anthropology 56.100 or equivalent, or permission of the department.
Not offered 1982-83.

Sociology 53.373★

Criminal Justice Policy

A description of Canadian criminal justice administration, including prison, parole, probation and community treatment, with an emphasis on conflicting ideologies and the dynamics of policy-making decisions. Consideration is given to the relationship between criminal justice policy and other aspects of social change.

Prerequisite: Sociology 53.255★ or 53.270 or permission of the department.

Evening division, First and Second terms: Lectures and discussion three hours a week.

Anthropology 54.373★

Urban Anthropology

This seminar enables students to pursue their interests in contemporary urban studies from the viewpoint of urban anthropology. Students do individual research projects on an urban group of their choice and the different findings are then compared and contrasted with contemporary urban anthropological theory and ethnography. Original participant observation of urban groups is encouraged where possible.

Prerequisite: One of Sociology 53.100, Anthropology 54.100, Sociology-Anthropology 56.100 or equivalent, or permission of the department.

Not offered 1982-83.

Sociology 53.375★

Medical Sociology

A study of social factors related to health and illness, the illness role, relationships between patients and health practitioners, and the organization of health services. Attention is given to both the social psychology of health and illness and the structure of organizations concerned with health care.

Prerequisite: One of Sociology 53.100, Anthropology 54.100, Sociology-Anthropology 56.100 or equivalent, or permission of the department.

Day division, Second term: Lectures and discussion three hours a week.

H. Burshtyn

Sociology 53.377★

Sociology of Welfare Institutions

A study of the emergence and position of welfare institutions in contemporary society with special emphasis on their relationship to social change, ideological conflicts and forms of organization.

Prerequisite: One of Sociology 53.100, Anthropology 54.100, Sociology-Anthropology 56.100 or equivalent, or permission of the department.

Evening division, Second term: Lectures and discussion three hours a week.

G. Irving

Sociology 53.380

Social Policy

A study of social policy in relation to social change and issues in Canadian society. This involves the policy orientation and role of the social sciences, especially sociology, in assessing the socio-cultural background, the processes and the consequences of social policy. Contemporary Canadian issues are considered as case studies in social policy.

Prerequisites: Introductory sociology or anthropology and at least one additional full Second- or Third-year course in sociology, or equivalent courses in related disciplines, or permission of the department.

Day division: Seminar and discussion three hours a week.

A. Podgorecki

Sociology 53.386★

Field Placement: Criminology and Corrections Concentration

Experience in an agency setting which provides the basis for translating the academic dimension into practical involvement in various aspects of corrections and policy.

Prerequisite: Open only to those students formally admitted to and registered in the Criminology and Corrections concentration.

First and Second terms.

Sociology 53.388★

An Examination of Current Issues in Criminal Justice

A seminar focusing on conflicting goals among components of the criminal justice system, the theory and practice of correctional institutions and their alternatives, and offenders' rights.

Prerequisites: One of Sociology 53.100, Anthropology 54.100, Sociology-Anthropology 56.100 or equivalent, and Third year standing or permission of the department.

Day division, First term and Second terms: Seminar three hours a week.

Sociology-Anthropology 56.391★ and 56.392★

Course-Related Tutorials

See explanatory note on p. 274.

Anthropology 54.410

The Ethnographic Enterprise

An examination of the premises underlying particular cases of empirical work in anthropology. The value of various anthropological paradigms for the solution of standard ethnographic problems.

Prerequisite: Final-year Honours standing or permission of the department.

Day division: Seminars two hours a week.

J. Cove

Sociology-Anthropology 56.411

Selected Problems in Mass Communication Analysis

In a given year, selected policies and practices of media and regulatory institutions are considered. Issues may include the nature of the political process,

national sovereignty, national identity or cultural values, in relation to mass communications. (Also listed as Mass Communication 27.411.)

Prerequisite: Fourth-year standing in Honours Mass Communication or permission of the School of Journalism or the Department of Sociology and Anthropology.
Day division: Seminar three hours a week.

Sociology-Anthropology 56.421★

Topics in Quebec Society

Selected topics in Quebec society, more advanced than those treated in the regular course program. The choice of topic varies from year to year.

Not offered 1982-83.

Sociology 53.443★

Selected Problems in the Uses of Sociology and Social Policy Analysis

An examination of selected problems in the relation between sociology as a discipline and the uses to which it may be put. Depending on the interests of the instructor, these may include: social criticism, social intervention, social policy and social planning, social engineering, systems analysis and action research.

Prerequisite: Final-year Honours standing, or permission of the department.

Not offered 1982-83.

Sociology 53.450★

Advanced Research Methodology

A study of specific methodological topics in social research. Among the topics which may be included are: secondary data analysis, elite interviewing, observational techniques, social indicators, and evaluation research.

Prerequisite: Final-year Honours standing, or permission of the department.

Day division, First term: Seminars two hours a week.

T. Nosanchuk

Note:

The following courses, Sociology 53.451★-53.458★ are workshops organized either around a specific research topic or around some policy or interventionist issue. The content is expected to vary from year to year reflecting the current research interests of the instructor. When a workshop is offered, a detailed description will be available. In general, specific area workshops are unlikely to be offered more than once in any two year period.

Sociology 53.451★

Workshop In Demography/Human Ecology

A research and/or policy oriented seminar which will use census data or other secondary sources to examine topics in Canadian population, technological development, migration or resource use, depending on the interests of the instructors.

Prerequisite: Final-year Honours standing or permission of the department.

Not offered 1982-83.

Sociology 53.452★

Workshop on Work and Organizations

A research-oriented seminar which, depending on the instructor, may examine the occupational distribution in Canada, ethnicity, gender and work, occupational choice, trade unions, professional organizations, the professions or bureaucracy.

Prerequisite: Final-year Honours standing or permission of the department.

Not offered 1982-83.

Sociology 53.453★

Workshop in Criminology/Deviance

A seminar which, depending on the research interests of the instructor, may consider crime, criminal justice, social processes relating to the implementation of criminal justice policy, or other aspects of criminality or deviance.

Prerequisite: Final-year Honours standing or permission of the department.

Day division, First term: Seminar two hours a week.

F. Hughes

Sociology 53.454★

Workshop on Sociology of Education

A research- or policy-oriented seminar which, depending on the research interests of the instructor, may examine teacher expectancy effects, student culture, barriers to equality of access or other substantive issues.

Prerequisite: Final-year Honours standing or permission of the department.

Day division, First term: Seminar two hours a week.

S. Richer

Sociology 53.455★

Workshop on Stratification and Mobility

A research-oriented seminar which, depending on the research interests of the instructor, may examine differentiation over time or comparatively, patterns of inheritance mobility, or the effects of ethnicity, of gender and of past education on returns to education.

Prerequisite: Final-year Honours standing or permission of the department.

Not offered 1982-83.

Sociology 53.456★

Workshop in Urban Sociology

A research-oriented seminar examining aspects of the Ottawa area. These may include patterns of urban growth and change, residential and urban-rural mobility, depending on the research interests of the instructor.

Prerequisite: Advanced Honours standing or permission of the department.

Not offered 1982-83.

Sociology 53.457★

Workshop in Social Psychology

A research-oriented seminar which, depending on the research interests of the instructor, may focus on one or more of the following topics: attribution theory, cognitive social psychology, conformity, ethnomethodology, psychoanalysis or victimology.

Prerequisite: Final-year Honours standing or permission of the department.

Not offered 1982-83.

Sociology 53.458★

Workshop in Political Sociology

A research-oriented seminar which, depending on the research interests of the instructor, may examine voting behaviour, political movements and parties, national and community elites, relations between society and the state and social conflict.

Prerequisite: Final-year Honours standing or permission of the department.

Day division, Second term: Seminar two hours a week.

D. Olsen

Sociology-Anthropology 56.465★

Selected Problems in the Study of Ethnic and Race Relations

An intensive examination of certain aspects of ethnic and race relations and conflict as they relate to the concept of plural society, to the revival of ethnic and racial prejudice against recent immigrants to post-industrial societies and to the emergence of ethnic consciousness and nationalism.

Prerequisite: Final-year Honours standing or permission of the department.

Not offered 1982-83.

Anthropology 54.470★

Selected Problems in the Study of New World Indians and Eskimos

An in-depth examination of several Indian and Eskimo societies. Attention is given to both change and persistence in social and cultural patterns within the historical period, as well as to the contemporary conditions under which Indians and Eskimos live. Emphasis is placed on the native peoples of Canada and other areas of the Americas.

Prerequisite: Final-year Honours standing or permission of the department.

Day division, First term: Seminar two hours a week.

V. Blundell

Anthropology 54.475★

Contemporary Problems in Anthropology

Selected problems in anthropology, not ordinarily treated in the regular course program. The choice of topic varies from year to year. Topic for 1982-83: Phenomenology. An examination of phenomenology as a perspective with respect to its relevancy for anthropology. This examination is both methodological and substantive. The relationship of phenomenology to positivism and structuralism is a primary concern.

In addition, applications of this perspective to a range of issues (consciousness, cosmologies, symbolism) are explored.

Day division, Second term: Seminar two hours a week.

C. Laughlin

Anthropology 54.476★

Contemporary Problems in Anthropology

Selected problems in anthropology, not ordinarily treated in the regular course program. The choice of topic varies from year to year. Topic for 1982-83: The Anthropology of Native Rights. Native groups in Canada are currently attempting to re-define their relationships to the wider society. That process involves questions of ownership and control of land and resources, self-government, legal status, and cultural integrity. This course examines the origins of those questions in the context of acculturation, and how they are being resolved. Emphasis is placed on the role of anthropology in that process, particularly the kinds of inputs that can be made by cultural ecologists, ethno-historians, and development specialists. (Students interested in the legal aspects of this topic are also referred to Law 51.354★, Law and Native Peoples of Canada.)

Prerequisite: Fourth-year Honours standing or permission of the department.

Day division, Second term: Seminar two hours a week.

V. Valentine

Sociology-Anthropology 56.478★

Anthropology of the Polar Basin

A comparative study of the social and cultural anthropology of the native peoples indigenous to the Polar Basin. Emphases are placed on similarities and differences in social structure, cultural forms and modernization in Canada, Alaska, Greenland, USSR and Northern Europe. Questions related to administrative policy concerning land rights, participation in modern resource development projects and the development of nativistic movements are also examined.

Prerequisite: Final-year Honours standing or permission of the department.

Not offered 1982-83.

Sociology 53.485★

Contemporary Problems in Sociology

Selected problems in sociology, not ordinarily treated in the regular course program. The choice of problems varies from year to year.

Not offered 1982-83.

Sociology 53.486★

Contemporary Problems in Sociology

Selected problems in sociology, not ordinarily treated in the regular course program. The choice of topics varies from year to year. Topic for 1982-83: Contemporary Developments in Criminology.

Day division, Second term: Seminar two hours a week.

I. Taylor

Sociology 53.491★ and 53.492★
 Anthropology 54.491★ and 54.492★
Tutorial In Sociology or Anthropology
 See explanatory note, p. 274.

Sociology 53.495, Anthropology 54.495
Honours Practicum

At the end of their final year, Honours candidates are required to present a major research essay. For Honours students in anthropology, and for those Honours students in sociology who choose this option, this requirement is met through the Practicum. Students present their essay proposals for discussion and criticism to fellow students and faculty and report periodically upon the paper's progress. Common problems of conceptualization, research design, analysis and interpretation are taken up for consideration. Prerequisite: Final-year Honours standing.
J. Chevalier, F. Hughes

Sociology 53.498

Honours Essay

At the end of their final year, Honours candidates are required to present a major research essay. For Honours students in sociology the Honours Essay, carried out under a faculty supervisor, is one way of meeting this requirement. Early in the year and in consultation with the Co-ordinator of Honours (Sociology), the student selects or is assigned a supervisor. The student is orally examined upon the Essay after its submission. Prerequisite: Final-year Honours standing.
 Hours arranged.

Graduate Courses

Final-year Honours students are encouraged to take one or more graduate seminars which are available to them with the permission of the department. A variety of theoretical, substantive and methodological courses are available. Specific details are contained in the 1982-83 Graduate Studies and Research calendar.

Courses Planned for Summer School Day and Evening Divisions and Fall-Winter Evening Division

Summer

At least one of the introductory courses (Sociology 53.100, Anthropology 54.100 or Sociology-Anthropology 56.100) will be given every Summer in both divisions.

Every Summer one of the required theory courses will be given, alternating between Day and Evening divisions. Other offerings will depend upon departmental capabilities and student interest and demand. A variety of types and levels of courses will be offered each year.

Fall-Winter Session Evening Division

The introductory courses (Sociology 53.100, Anthropology 54.100, Sociology-Anthropology 56.100) are offered every year in one or more sections. One of the required methods courses (Sociology-Anthropology 56.200★ and either Sociology 53.201★ or Anthropology 54.201★) and one of the required theory courses (Sociology-Anthropology 56.305, Sociology 53.306 and Anthropology 54.310) will be offered in every Evening session.

The specific courses will rotate year by year, so that each of the methods courses will have been offered in the Evening over a two-year period and each of the theory courses over a three-year period.

A number of other courses will be offered with some frequency as well, depending upon departmental capabilities and student interest and demand. In any given year an attempt will be made to ensure a variety of types and levels.

Institute of Soviet and East European Studies

Members of the Institute

Director

J.L. Black, Co-ordinator of Programs

Associated Members of the Faculty

Glynn R. Barratt (*Russian*)

Robert Bedeski (*Political Science*)

J.L. Black (*History*)

Bohdan R. Bociurkiw (*Political Science*)

R.L. Carson (*Economics*)

R. Carter Elwood (*History*)

V.I. Grebenshikov (*Russian*)

D. le Berrurier (*Art History*)

Angelina Lewinson (*Russian*)

Carl H. McMillan (*Economics*)

George Melnikov (*Russian*)

J. George Neuspiel (*Law*)

Gertrud Neuwirth (*Sociology*)

Adam Podgorecki (*Sociology*)

Teresa Rakowska-Harmstone (*Political Science*)

George Roseme (*Political Science*)

Radoslav Selucky (*Political Science*)

Emilie Stichling (*Russian*)

Lloyd Strickland (*Psychology*)

John W. Strong (*History*)

Halina Van de Lagemaat (*Russian*)

Paul Varnai (*Russian*)

General Information

A Committee on Soviet and East European Studies was formed in 1963 to foster interdisciplinary studies, research, conferences and publications in this area. The Committee was transformed into the Institute of Soviet and East European Studies in 1970. Faculty members from nine disciplines (art history, economics, geography, history, law, political science, psychology, Russian and sociology) participate in the institute's programs. They are joined on an occasional basis by visiting scholars (including visitors from the U.S.S.R. and Eastern Europe).

On the undergraduate level, the institute offers an interdisciplinary Bachelor of Arts (Honours) program in Soviet and East European Studies. The institute also administers a program of interdisciplinary studies leading to a Master of Arts degree in Soviet and East European Studies, the only one of its kind in Canada. The curricula for both programs are offered largely through participating departments. Students in the institute's programs are eligible to apply, under the academic exchange agreement between Carleton and the Leningrad State University, for ten months of study in the Soviet Union. A similar exchange agreement exists with the University of Warsaw; and an agreement with the International Cultural Institute in Budapest provides for graduate studies at post-secondary institutions in Hungary. Students partici-

pating in the institute's programs have at their disposal a specialized periodicals reading room in the institute, the University library's collection of books, documents, periodicals and micro-materials on the Soviet Union and Eastern Europe and the extensive holdings of the National Library and other specialized libraries in Ottawa.

Each year the institute organizes a series of public seminars and lectures by invited specialists from outside the University, on a broad range of topics bearing on the Soviet Union and Eastern Europe. The institute also sponsors frequent conferences and colloquia and promotes extension courses in the area. The institute maintains organized research programs in two broad areas: East-West relations (with current emphasis on their economic, legal and military-strategic aspects) and nationalities problems and related questions of minority rights in the U.S.S.R. and Eastern Europe. The institute issues a regular series of working papers, special studies and bibliographic materials, and has sponsored eight volumes in the *Carleton Series in Soviet and East European Studies*.

Because of its interdisciplinary character, a degree in Soviet and East European studies provides a useful basis for a career in government service either at home or abroad. The expansion of East-West economic relations has increased the demand for area specialists in the business and financial communities. For many students, studies in Soviet and East European affairs constitute a convenient first step to more specialized professional or academic training.

Honours Program

The objective of the Honours program is to equip students with indispensable linguistic tools and to provide, through an interdisciplinary approach, an integrated knowledge of the cultures, historical developments and contemporary social, economic and political systems of the area. The program leads to the degree of Bachelor of Arts with Honours in Soviet and East European Studies.

Combined Honours Program

A Combined Honours degree between Soviet and East European Studies and the School of Journalism is offered to interested students.

Course requirements for this degree are planned by the Director of the institute in consultation with the Director of the School of Journalism, and are designed to accommodate the students' interests and needs.

Combined Honours programs are also possible in conjunction with other disciplines and are governed by the regulations of the departments concerned.

Further details on these programs may be obtained from the Institute.

Admission Requirements

Admission to the program must be approved by the Institute of Soviet and East European Studies and by the Faculty of Social Sciences Committee on Honours. Students with at least a 65% average in Senior Matriculation or a C standing in the Carleton Qualifying University year may be enrolled in the program in the First year. With the consent of the Institute, students may also enter the program in subsequent years provided they have maintained Honours standing and have completed the program's course requirements to that point.

Course Requirements

A total of twenty, full-course credits is required for the Honours B.A. in Soviet and East European Studies.

All candidates are normally required to take three full courses in the Russian language beyond the introductory level: Russian 36.150 (Intermediate Russian, for which Russian 36.100, or its equivalent, is a prerequisite), Russian 36.200 (Advanced Russian) and either Russian 36.303 (Russian Translation) or Russian 36.203 (Russian Grammar). Students are normally expected to complete their language requirements by the end of their Third year. Other Russian and Eastern European language and literature courses may be selected as additional components of the candidate's Honours program (see below).

In the First year, courses must be chosen, in consultation with the Honours Supervisor, from the 100 level, or from higher level courses open to First-year students. These courses should be selected as preparation for more specialized Soviet and East European area courses offered in various disciplines. Introductory courses in economics, European history and political science (as well as other introductory courses in the social sciences) are therefore normally taken at this stage.

In the following three years, candidates must select seven additional full-course credits (representing no less than three different disciplines) from the area-related courses offered by participating departments and listed below. The following three courses are regarded as forming the core of the institute's undergraduate area studies program: Economics 43.371★ and 43.372★ (covering the Soviet and East European economies), History 24.260 (Russian and Soviet History) and Political Science 47.320 (Soviet Government and Politics) and all three are strongly recommended to all candidates for the degree. In addition, an Honours essay is required in the Fourth year (see below).

Four additional courses are to be selected, in consultation with the Honours Supervisor, from the general offerings of the Departments of Economics, Geography, History, International Affairs, Law, Political Science, German, Russian (or other relevant modern languages) and Sociology.

Courses Offered by Participating Departments

Art History

- 11.320★ Byzantine Art
- 11.325★ Russian Art

Russian

- 36.201★ Russian Conversation
- 36.203 Russian Grammar
- 36.260 Russian Literature in English Translation — Nineteenth and Twentieth Centuries
- 36.290 Twentieth-Century East-European Literature in English Translation
- 36.300 Russian Style and Composition
- 36.301★ Advanced Russian Conversation
- 36.303 Russian Translation
- 36.335 Major Authors: Pushkin to Chekhov
- 36.355 Major Authors: Gorky to Solzhenitsyn
- 36.360★ Special Topic: Dostoevsky to Chekhov (in English Translation)
- 36.361★ Special Topic: The Revolution and After (in English Translation)
- 36.390 Slavic or Hungarian Language Tutorial
- 36.399 Introduction to Methods of Research
- 36.405 Tutorial: History of the Russian Language
- 36.435 Tutorial: Special Topic (Literature)
- 36.445 Tutorial: Special Topic (Drama)
- 36.455 Tutorial: Special Topic (Post-1917 Period)
- 36.493★ Translation Tutorial
- 36.494★ Translation Tutorial II

Ukrainian

- 36.216 Advanced Ukrainian

Slavic Languages

- 36.390 Slavic or Hungarian Language Tutorial

German

- 22.355★ Literature of the German Democratic Republic

Geography

- 45.351★ Northern Lands
- 45.360★ Soviet Union
- 45.361★ East Europe
- 45.570★ Problems in Arctic and Subarctic Environments

History

- 24.260 History of Russia and the U.S.S.R.
- 24.360 History of the U.S.S.R.
- 24.361★ The Russian Empire
- 24.365★ Soviet Foreign Policy
- 24.366★ Modern East Central Europe
- 24.460 Selected Problems in Russian History
- 24.461 Selected Problems in Soviet History
- 24.560 Revolutionary Russia, 1808-1921
- 24.589 Historiography (section dealing with Modern Russia)

Economics

- 43.365★ The Economics of Planning
- 43.371★ Socialist Economic Systems: The Soviet Model
- 43.372★ Socialist Economic Systems: Eastern European Variants
- 43.470 Comparative Economic Systems
- 43.536★ Comparative Economic Systems I
- 43.537★ Comparative Economic Systems II

Law

- 51.420★ International Economic Law II
- 51.421★ International Economic Law III
- 51.463 Public International Law
- 51.488 Socialist Legal Systems

Political Science

- 47.314★ Eastern European Politics
- 47.316★ Revolution
- 47.320 Soviet Government and Politics
- 47.330★ Politics and Literature
- 47.333 Modern Political Thought and Ideologies
- 47.431★ Marxist Thought
- 47.432★ Contemporary Marxism
- 47.461★ Soviet Foreign Policy
- 47.483★ Foreign Politics of Major East Asian Powers
- 47.514★ Comparative Communist Politics; Theory and Practice
- 47.515★ Comparative Communist Politics; Selected Aspects
- 47.516★ Selected Problems in Soviet Politics

International Affairs

- 46.535★ Political Economy of East-West Relations
- 46.566★ Integration in Eastern Europe

Sociology

- 53.345★ Stratification and Mobility
- 53.350★ Political Behaviour
- 53.545 Power and Stratification
- 53.550 National Unity in Multi-ethnic Societies
- 53.583 Marx and Neo-Marxists

Soviet Studies

- 55.400★ Aspects of Eastern Europe
- 55.401★ Aspects of Eastern Europe
- 55.402★ Aspects of Eastern Europe
- 55.490★ Tutorial in Soviet and East European Studies
- 55.491★ Tutorial in Soviet and East European Studies
- 55.492★ Tutorial in Soviet and East European Studies
- 55.500★ Interdisciplinary Seminar on the Soviet Union and Eastern Europe
- 55.501★ Interdisciplinary Seminar on the Soviet Union and Eastern Europe

Note: Not all of the foregoing courses are offered in any given year and not all combinations of courses are possible. See departmental listings for further details.

Honours Essay

Students taking Honours in Soviet and East European Studies must write a major research essay (Soviet Studies 55.498) during their final year. This essay carries the weight of one full course. The subject for research will be selected in consultation with the institute and a supervisor will be assigned. An oral defence of the essay is required.

Academic Standing

Students must maintain Honours standing as prescribed by the general requirements of the Faculty of Social Sciences.

Graduate Program

The institute offers an interdisciplinary Master of Arts program in Soviet and East European Studies with the participation of faculty from the Departments of Economics, Geography, History, Law, Political Science, Russian and Sociology, as well as invited specialists from other universities and visiting scholars from the U.S.S.R. and Eastern Europe. It is designed for students wishing to acquire specialized knowledge of the Soviet and East European area, including proficiency in Russian, before proceeding towards a doctoral degree in one of the disciplines represented in the program, either at Carleton or another university. The program is also suitable for students aspiring to a professional, business or government career which requires knowledge of the area. For details, consult the Graduate Studies and Research Calendar.

Courses Offered

Soviet Studies 55.400★

Aspects of Eastern Europe

An interdisciplinary seminar in aspects of the study of Eastern Europe with specific content dependent on the current emphasis and resources of the program of the institute. Recommended for Institute of Soviet and East European Studies Honours students.
Not offered 1982-83.

Soviet Studies 55.401★

Aspects of Eastern Europe

See description of Soviet Studies 55.400★.
Not offered 1982-83.

Soviet Studies 55.402★

Aspects of Eastern Europe

See description of Soviet Studies 55.400★.
Not offered 1982-83.

Soviet Studies 55.490★

Tutorial in Soviet and East European Studies

Tutorials or reading courses on selected topics may be arranged with the permission of the institute and agreement of the instructor.

Prerequisite: Permission of the institute.

Soviet Studies 55.491★

Tutorial in Soviet and East European Studies

Tutorials or reading courses on selected topics may be arranged with the permission of the institute and agreement of the instructor.

Prerequisite: Permission of the institute.

Soviet Studies 55.492★

Tutorial in Soviet and East European Studies

Tutorials or reading courses on selected topics may be arranged with the permission of the institute and agreement of the instructor.

Prerequisite: Permission of the institute.

Soviet Studies 55.498

Honours Essay

Prerequisite: Permission of the institute.

Soviet Studies 55.500★

Interdisciplinary Seminar on the Soviet Union and Eastern Europe

Prerequisite: Permission of the institute.

First term.

Soviet Studies 55.501★

Interdisciplinary Seminar on the Soviet Union and Eastern Europe

Prerequisite: Permission of the institute.

Second term.

Department of Spanish

Officers of Instruction

Chairman
R. Larson

Assistant Chairman
J. Jurado

Supervisor of Language Courses
J.M. López-Saiz

Supervisor of Honours and Majors Studies
R.L. Jackson

Supervisor of Graduate Studies
C.A. Marsden

Director of Winter Program Abroad
J.M. López-Saiz

Professors
R.L. Jackson
J. Jurado

Associate Professors
F. Atienza
F. Hernández
R. Larson
A. López-Fernández
C.A. Marsden
P.J. Roster, Jr.

Assistant Professors
J.M. López-Saiz
A. Lozano

Instructor
M.A. Giella

General Information

The Department of Spanish offers both Major and Honours programs. Classes are generally conducted in Spanish, and laboratory instruction, an integral part of courses at the introductory and intermediate levels, is also available to students in the more advanced language courses.

The department offers introductory Portuguese when there is a sufficient number of interested students.

Lists of prescribed texts and supplementary reading for all courses are available from the Secretary of the department.

Students are encouraged to take advantage of the favourable atmosphere for informal practice of the language provided by CASA, the Society for Students of Spanish.

Acceleration and Intensive Spanish

Students who are beginning the study of Spanish at university, and who are considering Spanish as a Major, should take note of Spanish 38.120, Intensive Introductory Spanish (two credits), 38.151, Intensive Intermediate Spanish, designed specifically for potential Majors, and the Intensive Spanish program, a year which includes a term abroad, devoted exclusively to the study of Spanish (see below).

Summer Session and Evening Offerings

The department normally offers language courses (Spanish 38.115, 38.150, 38.201★, 38.202★, 38.301★, 38.302★) through the 300 level in both Day and Evening divisions during the year (38.115 Summer session). In addition, the department offers Spanish 38.210★ and 38.211★ every other year in the Evening division and has as well a system of rotation that ensures the offering of a different literature course at the 300, 400 and 500 levels each year in the Evening.

Intensive Spanish Program and Winter Program Abroad

The Intensive Spanish program is a year devoted exclusively to the study of Spanish. The program is divided into First term and Second term. Students may enrol in either of the two terms or in both. This program will not be offered in the event of insufficient enrolment.

First Term: Language Acquisition

The First term of the Intensive Spanish program, offered at Carleton, is designed to provide a maximum of acceleration in language acquisition to well-motivated students with little or no previous training in Spanish. While intended for the beginning student, the program is flexible enough to accommodate students who already have a grade of at least C+ in Grade 13 Spanish or in Spanish 38.115 or the equivalent. Such students may audit the introductory unit (Spanish 38.115) of the program but may receive only an additional one and a half credits upon successful completion of the First term.

The full First term covers the following courses:

Spanish

38.115 Introductory Spanish;
38.150 Intermediate Spanish;
38.201★ Spanish Conversation.

Students may enrol in any course unit of this program for equivalent credit. Similarly, they may withdraw from the program, in exceptional cases, after each unit, receiving equivalent credit after successful examination for work done.

This program entails fifteen hours of class per week plus language laboratory instruction and practice for a total of up to two and a half credits.

During the First term students are charged with the responsibility of spending, together with the other members of the program, as much time as possible outside the classroom under the guidance of a "group leader" (a senior student in Spanish), who will encourage them to practise whatever material they are being exposed to in class, and who will organize drill sessions and other activities for the purpose of reinforcing what the students are learning during regular classroom hours. After successful completion of the First term, students have the option of joining the Second term of the Intensive Spanish program or enrolling in up to two and a half credits in the subjects of their choice.

Second Term: Language and Civilization

During the Second term the program is held in a Spanish-speaking country, where students continue their studies by taking another two and a half compressed courses in Spanish.

Courses available abroad are:

Spanish

38.202★ Spanish Composition

38.210★ Spanish Civilization

38.211★ Spanish American Civilization

38.301★ Advanced Spanish Conversation

38.302★ Advanced Spanish Composition

The program requires fifteen class hours a week plus regular field trips. Attendance is compulsory, subject to the usual exceptions.

The cost of the program, including university fees and room and board, is somewhat higher than a similar period of full-time study spent at Carleton, plus air fare.

Admission Requirements

Admission to the Winter Program Abroad (Second term) is limited to students who have **(a)** completed the Intensive Spanish program, First term; or **(b)** have a credit in an intermediate-level Spanish course and Spanish 38.201★ or the equivalent.

Second- or Third-year Spanish Majors who wish to take only this second half of the program are advised to take Spanish 38.201★, and four other half courses from those available in other disciplines during the First term. Non-Majors wishing to enrol in the program should not only consult the Department of Spanish concerning the program, but also their Major departments (chosen or intended) to arrange a Major program which will permit the necessary absence from Ottawa.

Interested students should apply to Professor J.M. López-Saiz, Director of the Program Abroad (Winter session, Second term), Spanish Department, preferably not later than October 15, 1982.

Majors Programs

Interested students must consult with the department as early as possible to plan their program. General requirements are as laid down on p. 96 of the calendar. A Major in Spanish normally consists of five full-course credits after Spanish 38.150, 38.151, or 38.120; Spanish 38.210★ and 38.211★ are compulsory, and three literature full-course credits at the 300 level must be taken. A Combined Major will consist of four full-course credits beyond the intermediate level, to include Spanish 38.210★, 38.211★ and two literature full-course credits at the 300 level.

Minimum Requirements for Majors and Honours

The department requires Majors and Honours students to have a minimum of C- in each required literature course at the 300 or 400 level or an average of C overall in these courses.

Honours Programs

Honours in Spanish

General regulations concerning Honours courses are to be found on pp. 96-98. The Honours program in Spanish is designed to give the student a thorough knowledge of Hispanic language and literature. Lectures and seminars cover the origins and evolution of the language, the principal periods of Spanish and Spanish American literature, and include some study of allied literatures in view of further work at the graduate level. The program consists of eight full-course credits beyond the intermediate level to include Spanish 38.210★, 38.211★, three literature full-course credits at the 300 level and at least two literature full-course credits at the 400 level. For an explanation of Honours standing see p. 98.

Combined Honours in Spanish and French

This program is recommended especially for students wishing to enter a Faculty of Education in one of the Ontario universities after completion of the B.A. with a view to becoming a language teacher in a secondary school. Six full-course credits beyond the intermediate level are required in each language. Required courses in Spanish are 38.210★, 38.211★, two literature full-course credits at the 300 level and at least one literature full-course credit at the 400 level.

Other Combined Honours Programs

Students interested in pursuing an Honours program in which Spanish is combined with another subject are invited to discuss the matter with the Supervisor of Honours in the Department of Spanish. The minimum requirements are six full-course credits beyond the

intermediate level in Spanish, to include Spanish 38.210★, 38.211★, two literature full-course credits at the 300 level and at least one literature full-course credit at the 400 level.

Graduate Courses

Students in Fourth-year Honours may take a maximum of two courses at the 500 level with special permission of the Graduate Studies Committee of the Department of Spanish. These courses are listed separately in the Graduate Studies and Research Calendar.

Prerequisites

All students wishing to enrol in a course for which they do not have the prerequisite must obtain the permission of the department.

Courses Offered

Note:

Students who have already taken any of the following full courses (no longer offered) may not enrol for additional credit in either of the corresponding half courses introduced in 1980-81: Spanish 38.210 (38.210★, 38.211★), 38.320 (38.320★, 38.321★), 38.330 (38.330★, 38.331★), 38.350 (38.350★, 38.351★), 38.415 (38.415★, 38.416★), 38.420 (38.420★), 38.430 (38.430★, 38.431★), 38.435 (38.435★, 38.436★), 38.440 (38.440★, 38.441★), 38.460 (38.460★, 38.461★), 38.470 (38.470★, 38.471★).

Spanish 38.115

Introductory Spanish

A course for those with no knowledge of Spanish, designed to give the student the fundamentals of spoken and written Spanish, through oral practice, reading and laboratory work.

Day and Evening divisions: Lectures and laboratory four hours a week.

Also offered in Intensive Spanish Program (First term).

Spanish 38.120

Intensive Introductory Spanish (two credits)

A course designed for students with little or no knowledge of Spanish. Using an intensive audiolingual approach to Spanish, students can attain in one year the level of proficiency and fluency normally gained in Spanish 38.115 and 38.150. Students not making satisfactory progress will be transferred to the regular introductory course (Spanish 38.115).

Prerequisite: Permission of the department.

Day division: Lectures and laboratory six hours a week.

M.A. Giella, members of the department

Spanish 38.150

Intermediate Spanish

A course for those with at least one year of Spanish. Grammar review, extensive reading, guided composition, laboratory work.

Prerequisite: Spanish 38.115 or equivalent.

Day and Evening divisions: Lectures and laboratory four hours a week.

Also offered in Intensive Spanish Program (First term).

Spanish 38.151

Intensive Intermediate Spanish

A course for potential Majors and for those with Grade 13 Spanish or equivalent. Review of grammar and some advanced syntax; extensive reading, discussion and composition. Laboratory work.

Prerequisites: Spanish 38.115 or equivalent, and permission of the department. With special permission of the department, students enrolled in this course may take simultaneously Spanish 38.201★.

Day division: Lectures and laboratory four hours a week.

R. Larson

Spanish 38.201★

Spanish Conversation

Conversation and discussion of current problems, supplemented by occasional written work.

Prerequisite: Spanish 38.150 or 38.151 or 38.120 or permission of the department.

Day and Evening divisions, First term: Three hours a week.

Also offered in Intensive Spanish Program (First term).

Spanish 38.202★

Spanish Composition

A course designed to consolidate the linguistic knowledge attained in Spanish 38.150 and to inculcate the elements of a good Spanish style.

Prerequisite: Spanish 38.150 or 38.151 or 38.120 or permission of the department.

Day and Evening divisions, Second term: Three hours a week.

Also offered in Winter Program Abroad (Second term).

Spanish 38.210★

Spanish Civilization

The cultural heritage of Spain in its social and geographical contexts.

Prerequisite: Spanish 38.150 or 38.151 or 38.120 or permission of the department.

Evening division, First term: Three hours a week.

Also offered in Winter Program Abroad (Second term).

J.M. López-Saiz

Spanish 38.211★

Spanish American Civilization

The cultural heritage of Spanish America in its social and geographical contexts.

Prerequisite: Spanish 38.150 or 38.151 or 38.120 or permission of the department.

Evening division, Second term: Three hours a week.
Also offered in Winter Program Abroad (Second term).
M.A. Giella

Spanish 38.235

An Introduction to Hispanic Theatre

A study of the theory and practice of dramatic production in Spain and Spanish America together with detailed analysis and interpretative reading of representative plays. Students in the course are required to participate in the staging of a play.

Prerequisite: Spanish 38.150 or 38.151 or 38.120 or permission of the department.

Not offered 1982-83.

Spanish 38.301★

Advanced Oral Spanish

An advanced sequel to Spanish 38.201★.

Prerequisite: Spanish 38.201★ or permission of the department.

Day division, First term: Three hours a week.

Also offered in Winter Program Abroad (Second term).

Spanish 38.302★

Advanced Spanish Composition

An advanced sequel to Spanish 38.202★.

Prerequisite: Spanish 38.202★ or permission of the department.

Day division, Second term: Three hours a week.

Also offered in Winter Program Abroad (Second term).

Spanish 38.303★

Spanish Phonetics and Phonology

A descriptive study of the sounds and sound patterns of Spanish. Practical exercises, written and oral. Recommended for teachers.

Prerequisite: Spanish 38.201★ and 38.202★ or permission of the department.

Not offered 1982-83.

Spanish 38.305

Intensive Oral Spanish

An intensive course in Spanish conversation which, being offered only in a Spanish-speaking country, also provides an introduction to Hispanic culture. Students who satisfactorily complete this course are ineligible to enrol subsequently in Spanish 38.201★ or 38.301★. Offered only in the Summer term. Compulsory attendance at all classes and participation in all activities.

Prerequisite: Spanish 38.150 or 38.151 or 38.120 or permission of the department.

Not offered 1982-83.

Spanish 38.320★

The Golden Age I

A study of representative works of Spanish literature of the Renaissance and Early Baroque periods.

Prerequisite: Spanish 38.210 or 38.210★ or 38.235 or permission of the department.

Day division, First term: Three hours a week.

J.M. López-Saiz

Spanish 38.321★

The Golden Age II

A study of representative works of Spanish literature of the Baroque period.

Prerequisite: Spanish 38.210 or 38.210★ or 38.235 or permission of the department.

Day division, Second term: Three hours a week.

J.M. López-Saiz

Spanish 38.330★

Nineteenth-Century Spanish Literature

A study of representative works of Spanish literature of the nineteenth century through the Generation of 1898.

Prerequisite: Spanish 38.210 or 38.210★ or 38.235 or permission of the department.

Day division, First term: Three hours a week.

F. Atienza

Spanish 38.331★

Twentieth-Century Spanish Literature

A study of representative works of Spanish literature after the Generation of 1898.

Prerequisite: Spanish 38.210 or 38.210★ or 38.235 or permission of the department.

Day division, Second term: Three hours a week.

Spanish 38.350★

Spanish-American Literature, 1500-1888

A study of representative works of Spanish-American literature of the Colonial Period and the nineteenth century prior to Modernism.

Prerequisite: Spanish 38.210 or 38.211★ or 38.235 or permission of the department.

Evening division, First term: Three hours a week.

Spanish 38.351★

Spanish-American Literature from Modernism to the Present

A study of representative works of Spanish-American literature since 1888.

Prerequisite: Spanish 38.210 or 38.211★ or 38.235 or permission of the department.

Evening division, Second term: Three hours a week.

Spanish 38.415★

Medieval Spanish Literature from the Origins through 1300

A study of major works of Spanish literature from the earliest times through the thirteenth century.

Prerequisite: Spanish 38.210 or 38.210★ or 38.235 or permission of the department. Students will normally have taken a literature course at the 300 level before enrolling in this course.

Not offered 1982-83.

Spanish 38.416★

Medieval Spanish Literature, 1300-1500

A study of major works of Spanish literature of the fourteenth and fifteenth centuries.

Prerequisite: Spanish 38.210 or 38.210★ or 38.235 or

permission of the department. Students will normally have taken a literature course at the 300 level before enrolling in this course.
Not offered 1982-83.

Spanish 38.420★

Cervantes

A study of Cervantes and his age, with particular reference to *Don Quijote*.

Prerequisite: Spanish 38.320, or 38.320★ and 38.321★ or permission of the department.

Day division, Second term: Three hours a week.

C.A. Marsden

Spanish 38.430★

Modern Spanish Novel

Analysis and interpretation of works by major Spanish novelists from the beginnings of Realism in the nineteenth century up to the Civil War in 1936.

Prerequisite: Spanish 38.330, or 38.330★ and 38.331★, or permission of the department.

Not offered 1982-83.

Spanish 38.431★

Contemporary Spanish Novel

Analysis and interpretation of works by major Spanish novelists from the Civil War to the present.

Prerequisite: Spanish 38.330, or 38.330★ and 38.331★ or permission of the department.

Day division, First term: Three hours a week.

A. López-Fernández

Spanish 38.435★

Modern Spanish Drama

Analysis and interpretation of works by major Spanish playwrights of the nineteenth and early twentieth centuries, together with study of related dramatic theory.

Prerequisite: Spanish 38.330, or 38.330★ and 38.331★ or permission of the department.

Not offered 1982-83.

Spanish 38.436★

Contemporary Spanish Drama

Analysis and interpretation of works by major Spanish playwrights from the Civil War to the present, together with study of related dramatic theory.

Prerequisite: Spanish 38.330, or 38.330★ and 38.331★ or permission of the department.

Not offered 1982-83.

Spanish 38.440★

Modern Spanish Poetry

A study of Spanish poetry and poetics of the nineteenth and early twentieth centuries.

Prerequisite: Spanish 38.330, or 38.330★ and 38.331★ or permission of the department.

Not offered 1982-83.

Spanish 38.441★

Contemporary Spanish Poetry

A study of Spanish poetry and poetics from the Generation of 1927 to the present.

Prerequisite: Spanish 38.330, or 38.330★ and 38.331★ or permission of the department.

Not offered 1982-83.

Spanish 38.460★

Twentieth-Century Spanish American Novel I

Analysis and interpretation of works by major Spanish American novelists of the first half of the twentieth century. The regionalistic novel of social realism, including novels of the Mexican Revolution, the pampa, the jungle, and the Andes.

Prerequisite: Spanish 38.350, or 38.350★ and 38.351★ or permission of the department.

Not offered 1982-83.

Spanish 38.461★

Twentieth-Century Spanish American Novel II

Analysis and interpretation of works by major Spanish American novelists of the first half of the twentieth century. Novels of universal theme, especially reflecting artistic, philosophical and psychological concerns.

Prerequisite: Spanish 38.350, or 38.350★ and 38.351★ or permission of the department.

Day division, Second term: Three hours a week.

R.L. Jackson

Spanish 38.470★

Twentieth-Century Spanish American Poetry I

A study of the principal tendencies in twentieth-century Spanish American poetry with special emphasis on the modernist poets, the post-modernist *poetisas* and the creationism of Huidobro.

Prerequisite: Spanish 38.350, or 38.350★ and 38.351★ or permission of the department.

Not offered 1982-83.

Spanish 38.471★

Twentieth Century Spanish American Poetry II

A study of the principal tendencies in twentieth century Spanish American poetry, with special emphasis on the social poetry of César Vallejo, Nicolas Guillén and Pablo Neruda.

Prerequisite: Spanish 38.350, or 38.350★ and 38.351★ or permission of the department.

Not offered 1982-83.

Spanish 38.490

Seminar on a Special Topic

Designed for Honours students normally in their final year, or for Graduate students.

Not offered 1982-83.

Spanish 38.491★

Seminar on a Special Topic

Designed for Honours students normally in their final year, or for Graduate students. Surrealism: The poetry of Rafael Alberti.

Evening division, First term: Three hours a week.

A. López-Fernández

Spanish 38.492★

Special Studies

From time to time members of the department form small groups to study certain problems or aspects of Spanish literature in greater depth than they are covered in other courses. Interested students should consult the department.

Not offered 1982-83.

■ **Portuguese Course**

Portuguese 38.116

Introductory Portuguese

A course designed to provide the student with the fundamentals of Portuguese grammar, a basic vocabulary and speaking knowledge of Portuguese. Students who have taken courses in other Romance languages should make considerable progress.

Not offered 1982-83.

Faculty of Engineering



Officers of the Faculty

Dean
J.S. Riordon

Associate Dean
F.W. Black

Assistant Dean and Faculty Registrar
E.W. Ryan

Assistant Faculty Registrar
S.M. Cotter

Departmental Chairmen

Civil Engineering
J. Adjeleian

Electronics
A.R. Boothroyd

Mechanical and Aeronautical Engineering
J.A. Goldak

Systems and Computer Engineering
Bernard Pagurek

Bachelor of Engineering Degree Program

The Bachelor of Engineering degree is awarded on successful completion of a four-year program of studies. In the first two and a half years the emphasis is on fundamental mathematical, physical and engineering sciences and on basic engineering. In the final year and a half of the B.Eng. program, curriculum options are offered with specialization in civil, electrical or mechanical engineering. In the electrical engineering option, further specialization is offered in the Second term of Fourth year. Students may elect one of three streams: general, computer systems engineering, or electronics.

The engineering programs of study mentioned above meet the academic requirements for professional engineering registration by the Association of Professional Engineers of the Province of Ontario; they also meet the academic requirements for professional registration in the provinces of Alberta, British Columbia, Manitoba, Newfoundland, New Brunswick, Nova Scotia, Prince Edward Island, Quebec, Saskatchewan and the Yukon.

A new program of studies has been initiated for 1982-83 leading to the Bachelor of Engineering degree in Computer Systems Engineering. The program comprises the First year of core material shown on p. 301, a Second year of modified core material and two further years of specialization in computing, communications and electronics, shown on p. 309.

The first three years of the Computer Systems Engineering program will be available in 1982-83; the complete program will be offered in 1983-84 and subsequently.

Admission Requirements

Qualifying University Year

The Ontario Secondary School Graduation Diploma. A 70% average must be presented on a minimum of 10 Advanced or Enriched Phase credits at Levels 3 and 4, including an appropriate preparation in Chemistry, Physics and Level 4 Mathematics.

First Year

The Ontario Secondary School Honours Graduation Diploma with a minimum 65% average and including Functions, Calculus, Chemistry and Physics.

A student unable to meet the foregoing specific course requirements but otherwise admissible to Carleton University may be admitted, but will be required to satisfy the outstanding requirements at the Qualifying-University-year level.

Enrolment Limitation

Applicants should note that in view of limited human and physical resources, meeting the admission requirements can only establish eligibility for selection to the Faculty of Engineering.

Each student offered admission to the Faculty of Engineering will have a place reserved in at least one of the specialized program options; Civil, Computer Systems, Electrical, or Mechanical Engineering; this will be confirmed in the letter of offer of admission. Transfer from one program option to another, requested after admission, will be permitted wherever possible. However, the Faculty of Engineering reserves the right to restrict enrolment in each of the foregoing program options.

Advanced Standing

Applications for admission with advanced standing to the program leading to the Bachelor of Engineering degree will be evaluated on an individual basis.

Advanced standing for academic subjects completed with a grade of C- or its equivalent at another university or college, or in another degree program at Carleton University, will be evaluated for equivalence to the program requirements of the Bachelor of Engineering.

The Faculty of Engineering does not normally accept, for transfer, courses which have been assessed as science courses and which might be used towards the Fourth-year engineering/science elective requirements, since the final year of study must be completed in the Bachelor of Engineering program at Carleton University.

Mature Matriculation

Persons who lack the normal entrance requirements as published in this calendar but who have been away from full-time studies for a minimum of two years and are twenty-one years of age or over, by December 31 of the year in which they wish to enrol, may receive consideration for admission to a degree program. See Admissions Section p. 36 for detailed information.

Qualifying University Year

Term	Lectures and Tutorials		Laboratory and Problem Analysis	
	I	II	I	II
65.010 Introductory Chemistry	3	3	3	3
69.006★ Functions and Relations	4	—	—	—
69.007★ Introductory Calculus	—	4	—	—
75.010 Pre-University Physics	3	3	3	3
Elective* (full-course equivalent)	3	3	3	3
Elective* (full-course equivalent)	3	3	3	3
Hours per week	16	16	12	12

*The hours per week for electives will vary depending upon the electives chosen, which must be selected from courses approved for a Qualifying-University-year Science program (pp. 364-365).

Accelerated Progress

Qualifying University year (Engineering) students who pass all required courses in Qualifying University year, including electives, with a B- or 7.0 average, may have their programs assessed for the purpose of reducing the number of courses required to graduate from the Bachelor of Engineering program. For example, approved humanities/social sciences electives taken as Qualifying University year electives, which are at a first-year level or higher, may be used to fulfil program requirements in the Bachelor of Engineering program. It is necessary for Qualifying-University-year students to meet the promotion requirements of the Qualifying University year, as well as the Accelerated Progress requirements, in order to be considered for Accelerated Progress.

Proficiency in English

Since the instructional language of the University is English, applicants must be able to understand and be understood in English, both written and oral. Applicants whose mother tongue is other than English must clearly exhibit this ability.

Academic Standing and Promotion

Students in Qualifying University year are permitted to write supplemental or grade-raising examinations or to enrol in Summer-session courses, in a maximum of two full courses or equivalent.

To achieve satisfactory academic standing the student must, at the end of August:

- (a) have received credit in Chemistry 65.010, Mathematics 69.006, 69.007 and Physics 75.010, and
- (b) have a grade-point average of 3.4 in all courses taken in the year.

Students who achieve satisfactory academic standing are promoted to First-year engineering.

Students who fail to achieve satisfactory academic standing forfeit their undergraduate status in the Faculty of Engineering.

The Qualifying University year is not considered as part of the Bachelor of Engineering program for the purpose of assessment of academic standing in the program.

Engineering Common Core

First Year	Lectures and Tutorials		Laboratory and Problem Analysis		Course Weight
	I	II	I	II	
65.111★ Chemistry for Engineering Students	3	—	3	—	5
75.100 Introductory Physics	3	3	3	3	10
69.107★ Elementary Calculus 1	5	—	—	—	5
69.117★ Elementary Algebra	—	5	—	—	5
82.111★ Engineering Analysis	—	3	—	3	5
88.100 Engineering Graphics and Design	2	2	4	4	9
95.165 Introduction to Computers	3	3	1	1	8
Elective, Humanities or Social Sciences	3	3	—	—	7
	19	19	11	11	54

Second Year

69.201 Intermediate Calculus	4	4	—	—	9
82.220★ Mechanics of Materials I	—	3	—	3	6
88.211★ Dynamics	3	—	3	—	6
88.230★ Introductory Fluid Mechanics	3	—	3/2	—	5
88.240★ Introductory Thermodynamics	—	3	—	3	6
88.270★ Elements of Materials Engineering	3	—	3	—	6
94.261★ Electrical Energy Conversion	—	3	—	3	6
94.265★ Computer Methods in Engineering	—	2	—	3/2	4
97.251★ Circuits and Signals	3	—	3	—	6
Elective, Humanities or Social Sciences	3	3	—	—	7
	19	18	10½	10½	61

Third Year, First Term

69.375★ Mathematics	3	—	—	4
82.322★ Mechanics of Materials II	3	3	—	6
88.333★ Fluid Mechanics and Heat Transfer	3	3	—	6
97.357★ Electronics I	3	3	—	6
94.360★ Dynamics of Linear Systems	3	3	—	6
Elective, Humanities or Social Sciences	3	—	—	3.5
	18	12	—	31.5

Note: See Elective Courses, p. 310.

Civil Engineering Program

Civil Engineering is primarily concerned with the planning, design, construction and maintenance of engineering works of all kinds, such as bridges, buildings, dams, airports, highways, railways, subways, harbours, water supply and sewage treatment systems. Civil engineers are employed in all levels of government, consulting offices, contracting firms, and the supply industries in positions of wide technical and administrative responsibility.

At Carleton University, students in their final year and a half in the civil engineering option will build upon the broad background in engineering developed in the common program of the first two and a half years. The program of the Fourth year requires the students to study in the general areas of structural engineering, transportation, and soil mechanics. The students are also encouraged to make use of all available elective courses to obtain as broad a background in civil engineering as is possible.

Electives

- 82.421★ Structural Analysis II
- 82.422★ Structural Design in Timber
- 82.424★ Soil Mechanics
- 82.426★ Design of Steel Structures
- 82.427★ Reinforced Concrete II
- 82.430★ Structural Planning in Architecture
- 82.431★ Foundation Engineering
- 82.434★ Transportation
- 82.435★ Transportation Geography
- 82.437★ Hydraulics of Municipal Waste Water Systems
- 82.440★ Construction/Project Management
- 82.441★ Hydrology
- 88.411★ Strength Analysis
- 88.412★ Failure Analysis and Non-Destructive Testing
- 88.414★ Vibration and Acoustics
- 88.430★ Control of Noise Pollution
- 88.443★ Energy Conversion and Power Generation
- 88.447★ Heating, Ventilating and Air Conditioning
- 88.472★ Manufacturing Processes — Deformation
- 88.473★ Engineering Materials
- 94.304★ File Structures and Data Bases
- 94.415★ Engineering Management

Third Year, Second Term	Lectures	Laboratory and Problem Analysis	Course Weight
69.376★ or 69.352★ Mathematics	3	—	4
82.104★ Surveying			4 (Summer)
82.323★ Introductory Structural Analysis	3	3/2	5
82.324★ Introductory Structural Design	2	3/2	4
82.328★ Introductory Soil Mechanics and Eng. Geology	3	3/2	5
82.333★ Urban Planning	2	3/2	4
82.337★ Municipal Engineering	3	3/2	5
Elective, Humanities or Social Sciences	3	—	3.5
	19	7.5	30.5
			+4 (Summer)

Note:

Students are encouraged to take Engineering 82.104★ (Surveying) in either the First or Second year of their Engineering program. Lectures and field work three weeks at the end of the Second term.

Fourth Year, First Term	Lectures and Tutorials	Laboratory and Problem Analysis	Course Weight
82.497 Fourth Year Project	—	5	3
82.420★ Structural Analysis I	3	3/2	5
82.423★ Reinforced Concrete I	3	3/2	5
82.425★ Design Structural Steel Components	3	3/2	5
82.428★ Geotechnical Engineering	3	3/2	5
One of:			
82.422★ Structural Design in Timber	2	3/2	4
82.434★ Transportation			
82.440★ Construction/Project Management			
82.441★ Hydrology			
Free Elective	3	—	3
	17	12.5	30
Fourth Year, Second Term			
82.497 Fourth Year Project	—	5	3
82.429★ Highway Engineering	2	3/2	4
82.480★ Resources Planning	2	3/2	4
Three of:			
82.421★ Structural Analysis II	2	3/2	4
82.426★ Design of Steel Structures	2	3/2	4
82.427★ Reinforced Concrete II	2	3/2	4
82.430★ Structural Planning in Architecture			
82.431★ Foundation Engineering			
82.435★ Transportation Geography (45.434★)			
82.437★ Hydraulics of Municipal Waste Water Systems			
Elective, Engineering or Scientific	2	3/2	4
Free Elective	3	—	4
	15	14	31

Electrical Engineering Program

Electrical engineers are engaged in research, design, and development associated with a wide variety of electrical apparatus and systems. Examples include electronics, circuit design and fabrication, communications, power systems, and the design and application of computers. Opportunities exist for electrical engineers in industry, government, and education, as well as private consulting.

At Carleton University, the first two and a half years of the Engineering program provide a broad common background of technical fundamentals. The last year and a half of electrical engineering concentrates primarily on electronics, electromagnetics, control and communications. In addition, electrical engineering students may further enhance their specialized knowledge by choosing Fourth-year engineering electives in the areas of electronics, materials, systems and computing.

Electives

- 88.430★ Control of Noise Pollution
- 88.443★ Energy Conversion and Power Generation
- 88.472★ Manufacturing Processes — Deformation
- 94.304★ File Structures and Data Bases
- 94.310★ Systems Analysis
- 94.320★ Industrial Engineering
- 94.362★ Electrical Power Circuits and Machines
- 94.405★ Discrete Simulation and its Applications
- 94.415★ Engineering Management
- 94.433★ Advanced Real-Time Programming
- 94.445★ Discrete Time Systems
- 94.457★ Introduction to the Architecture of Computer Systems
- 97.476★ Digital Integrated Electronics
- 97.477★ Analogue Integrated Electronics
- 94.481★ Software Engineering Project
- 97.452★ Microwave Circuits
- 97.459★ Communication Links
- 97.469★ Integrated Circuit Design and Fabrication
- 97.475★ Electronic Properties of Materials

Computer Science courses see p. 65.

Third Year, Second Term	Lectures and Tutorials	Laboratory and Problem Analysis	Course Weight
69.376★ or 69.352★ Mathematics	3	—	4
94.303★ Real-Time Computing Systems	2	2	4
94.356★ Automatic Control Systems I	3	3/2	5
94.367★ Switching Circuits	3	3/2	5
97.354★ Electromagnetic Theory	3	—	4
97.359★ Electronics II	3	3	6
Elective, Humanities or Social Sciences	3	—	3.5
	20	8	31.5

Fourth Year, First Term

94/97.497 94/97.498 Engineering Project (Note a)	—	5	3
97.450★ Electronic Circuit and System Design	2	3	5
Four of:			
94.451★ Communication Systems	3	3/2	5
94.461★ Microprocessor Systems	3	3/2	5
94.480★ Software Engineering	3	3/2	5
97.453★ Transmission Lines and Antennas	3	3/2	5
97.468★ Solid State Electronics	3	—	4
Free Elective	3	—	4
	17	14	32

Note:

(a) See course description to determine appropriate course number.

Fourth Year, Second Term

General Stream	Lectures and Tutorials	Laboratory and Problem Analysis	Course Weight
94/97.497 Engineering Project	—	5	3
One of:			
94.445★ Discrete Time Systems }	2	3/2	4
94.457★ Computer Architecture }			
One of:			
97.476★ Digital Integrated Electronics }	2	3	5
97.477★ Analog Integrated Electronics }			
Engineering Elective	2	3/2	4
Engineering Elective	2	3/2	4
Elective, Engineering or Scientific	2	3/2	4
Free Elective	3	—	4
	13	14	28
Computer Systems Engineering Stream			
94.498 Engineering Project	—	5	3
94.401★ Operating Systems	3	—	4
94.457★ Computer Architecture	3	—	4
94.460★ Data Communications	3	3/2	5
One of:			
94.404★ Industrial Engineering }			
94.405★ Discrete Simulation }	2	3/2	4
94.445★ Discrete Time Systems }			
Elective, Engineering or Scientific	2	3/2	4
Free Elective	3	—	4
	16	9½	28
Electronics Stream			
97.498 Engineering Project	—	5	3
97.476★ Digital Integrated Electronics	2	3	5
97.477★ Analog Integrated Electronics	2	3	5
Two of:			
97.459★ Communication Links }			
97.452★ Microwave Circuits }	2	3/2	4
97.475★ Electronic Properties of Materials }	2	3/2	4
97.469★ Integrated Circuit Design and Fabrication }			
Elective, Engineering or Scientific	2	3/2	4
Free Elective	3	—	4
	16	9½	28

Mechanical Engineering Program

Mechanical engineering by its nature is a highly diversified discipline, encompassing a range of activities from manufacturing processes and design to energy conversion and conservation. The main topic areas of the discipline are solid mechanics and materials, fluid mechanics and thermo-sciences which together provide the breadth necessary for the graduate mechanical engineer.

At Carleton University, students in their final year and a half in the mechanical engineering option will build upon the broad background in engineering developed in the common core program of the first two and a half years. In addition to the continued major emphasis on design, dynamics, thermodynamics and heat transfer the student can choose elective courses which span a wide range of applied subjects like noise control, energy conversion and power generation, manufacturing processes, vehicle technology, aerodynamics and flight mechanics, automatic controls, etc., which reflect the wide range of interests of faculty members of the Department of Mechanical and Aeronautical Engineering. In addition, the final-year student completes a major project on a topic of current interest in mechanical and aeronautical engineering.

Electives

- 82.104★ Surveying
- 82.434★ Transportation
- 82.437★ Hydraulics of Municipal Waste Water Systems
- 88.406★ Introduction to Vehicle Engineering
- 88.411★ Strength Analysis
- 88.412★ Failure Analysis and Non-Destructive Testing
- 88.414★ Vibration and Acoustics
- 88.430★ Control of Noise Pollution
- 88.432★ Fluid Dynamics
- 88.435★ Fluid Machinery
- 88.437★ Mechanics of Flight
- 88.441★ Power Plant Analysis
- 88.443★ Energy Conversion and Power Generation
- 88.447★ Heating, Ventilating and Air Conditioning
- 88.472★ Manufacturing Processes — Deformation
- 88.473★ Engineering Materials
- 94.362★ Electrical Power Circuits and Machines
- 94.415★ Engineering Management

Third Year, Second Term	Lectures and Tutorials	Laboratory and Problem Analysis	Course Weight
69.376★ or 69.352★ Mathematics	3	—	4
88.302★ Machine Design and Practice	3	3	6
88.304★ Dynamics of Machinery	3	—	4
88.340★ Applied Thermodynamics	3	—	4
88.370★ Principles of Manufacturing Engineering	3	—	4
88.390★ Mechanical Engineering Laboratory I	—	6	5
Elective, Humanities or Social Sciences	3	—	3.5
	18	9	30.5

Fourth Year, First Term	Lectures and Tutorials	Laboratory and Problem Analysis	Course Weight
88.497 Engineering Project	—	5	3
88.403★ Mechanical Systems Design	3	3	6
88.446★ Heat Transfer	3	—	4
88.491★ Mechanical Engineering Laboratory	1	5	5
One of:			
88.411★ Strength Analysis	3	—	4
88.414★ Vibration and Acoustics }			
Elective, Engineering	2	3/2	4
Elective, Engineering or Scientific	2	3/2	4
	14	16	30

Fourth Year, Second Term	Lectures and Tutorials	Laboratory and Problem Analysis	Course Weight
88.497 Engineering Project	—	5	3
88.495★ Professional Practice Seminar	3	—	4
88.452★ Mechanical Feedback Controls	3	—	4
Elective, Engineering	2	3/2	4
Elective, Engineering	2	3/2	4
Elective, Engineering	2	3/2	4
Elective, Engineering or Scientific	2	3/2	4
	14	11	27

Computer Systems Engineering Program

Computer Systems Engineering is concerned with the design and implementation of integrated computer systems to solve practical problems in areas such as communications, process control and information storage, transfer and display. Examples include computer network design, remote distributed control of pipeline pumping stations, telephone switching systems, and videotex data storage/transmissions/display systems.

At Carleton, the Computer Systems Engineering program begins in Second year. The First year, and to some extent the Second which constitutes a modified core, provide a background of technical fundamentals. While the Third and Fourth years have some commonality with the Electrical Engineering program they concentrate primarily on Electronics and Digital Logic, Computer Systems Organization and Design, Software, and Systems Engineering. In addition students may take a number of electives to either broaden their background or provide further specialized knowledge.

Suggested Electives

Engineering

- 82.220★ Mechanics of Materials I
- 88.230★ Introductory Fluid Mechanics
- 88.270★ Elements of Materials Engineering
- 94.302★ Compiler Construction
- 94.333★ Advanced Real Time Programming
- 94.405★ Discrete Simulation and Its Applications
- 94.415★ Engineering Management
- 94.445★ Discrete Time Systems
- 94.457★ Introduction to the Architecture of Computer Systems
- 94.481★ Software Engineering Project
- 97.354★ Electromagnetic Theory
- 97.452★ Microwave Circuits
- 97.453★ Transmission Lines and Antennas
- 97.459★ Communications Links
- 97.468★ Solid State Electronics
- 97.469★ Integrated Circuit Design and Fabrication
- 97.475★ Electronic Properties of Materials
- 97.477★ Analog Integrated Electronics

Mathematics, Physics and Computer Science

- 69.384★ Data Structures and Algorithm Analysis
- 70.483★ Topics in Applied Logic
- 70.484★ Design and Analysis of Algorithms
- 75.364★ Modern Physics
- 95.207★ Programming Languages II
- 95.301★ Concurrent Programming
- 95.407★ Artificial Intelligence

Business, Management and Law

- 41.101★ Principles of Financial Accounting
- 41.102★ Management Accounting
- 41.200 Intermediate Accounting
- 42.250★ Introduction to Business Finance

- 42.310★ Introduction to Administrative Processes
- 42.311★ Introduction to Organizational Behaviour
- 43.201★ Introduction to Micro-Economic Theory and Analysis
- 43.356★ Introduction to Labour Economics
- 43.357★ Introduction to Industrial Relations
- 43.430 Industrial Organization and Public Policy
- 51.220 Commercial Law I
- 51.321 Company Law
- 51.352★ Communications Law II

Second Year	Term	Lectures and Tutorials		Laboratory and Problem Analysis		Course Weight
		I	II	I	II	
69.207★ Elementary Calculus II		4	—	—	—	5
69.217★ Linear Algebra		—	4	—	—	5
88.211★ Dynamics		3	—	3	—	6
88.240★ Introductory Thermodynamics		—	3	—	3	6
94.202★ Advanced Programming Techniques		—	3	—	2	5
94.261★ Electrical Energy Conversion		—	3	—	3	6
94.265★ Computer Methods in Engineering		—	2	—	3/2	4
94.303★ Real Time Computing Systems		2	—	2	—	4
94.367★ Switching Circuits		3	—	3/2	—	5
97.251★ Circuits and Signals		3	—	3	—	6
Elective, Humanities or Social Sciences		3	3	—	—	7
		18	18	9½	9½	59

Third Year	Term	Lectures and Tutorials		Laboratory and Problem Analysis		Course Weight
		I	II	I	II	
69.311★ Algebraic Structures		4	—	—	—	5
69.352★ Engineering Statistics		—	3	—	—	4
94.304★ File Structures and Databases		3	—	—	—	4
94.310★ Systems Analysis		—	3	—	—	4
94.320★ Industrial Engineering		—	3	—	—	4
94.356★ Automatic Control Systems		—	3	—	3/2	5
94.360★ Dynamics of Linear Systems		3	—	3	—	6
94.461★ Microprocessor Systems		3	—	3/2	—	5
97.357★ Electronics I		3	—	3	—	6
97.359★ Electronics II		—	3	—	3	6
Elective, Engineering or Scientific		2	—	3/2	—	4
Elective, Engineering or Scientific		—	2	—	3/2	4
Elective, Humanities or Social Sciences		3	3	—	—	7
		21	20	9	6	64

Fourth Year	Term	Lectures and Tutorials		Laboratory and Problem Analysis		Course Weight
		I	II	I	II	
94/97.498 Engineering Project		—	—	4	6	6
94.401★ Operating Systems		—	3	—	—	4
94.451★ Communication Systems		3	—	3/2	—	5
94.460★ Data Communications		—	3	—	3/2	5
94.480★ Introduction to Software Engineering		3	—	—	—	4
94.485★ Computer Systems Design		—	3	—	3/2	5
97.450★ Electronic Circuit and System Design		2	—	3	—	5
97.476★ Digital Integrated Electronics		—	2	—	3	5
Elective, Engineering		2	—	3/2	—	4
Elective, Engineering		2	—	3/2	—	4
Elective, Engineering		—	2	—	3/2	4
Elective, Free		3	3	—	—	7
		15	16	11½	13½	58

General Information

The study of Engineering is necessarily structured. Upper-year courses are built on the material studied in the previous years and the approach taken is, of course, more advanced. The program consists of a consecutive sequence of four years, each of which comprises the two terms of the Winter session. Progress is by program year rather than course credits. Regulations governing promotion from one program year to the next are detailed below.

With few exceptions, courses in the Faculty of Engineering are offered only in the Winter session and only in the Day division. However, a significant portion of the Engineering program involves courses in the Faculties of Science, Arts and Social Sciences; many of these courses are offered in the Summer session and in the Evening division of the Winter session.

When a student first registers in the Faculty of Engineering he or she is assigned a faculty adviser who will provide counselling in the selection of courses and any problems the student may have. Students are encouraged to consult with their faculty advisers on a regular basis.

Course Load

The course requirements for each year of the program are tabulated on pp. 301-309 along with the course weight and hours for each course. Where the fraction $\frac{3}{2}$ appears in the laboratory and problem analysis column, it means a three hour period is scheduled on alternate weeks. The Fourth year in all options as well as Third-year computer systems engineering involve the equivalent of seven full courses; each other year involves the equivalent of six full courses.

The normal course load for a full-time student will be all of the courses for the program year in which the student is registered. The normal course load for Fourth-year students will be the lesser of seven full courses or the number of courses required to satisfy graduation requirements. In order to enrol in a course, a student must have satisfied the prerequisites for that course or have permission of the department offering the course. Any student who is enrolled in a course but who has not satisfied the prerequisites for that course may be required to withdraw from the course.

Except for those Fourth-year students with fewer than five courses outstanding in their program, full-time students must, after the last day for withdrawal from courses in each term, remain enrolled in a minimum of five courses: part-time students in a maximum of two courses. In exceptional circumstances, and on the recommendation of a departmental chairman or the Faculty Registrar, the Dean of Engineering may waive this regulation where it is deemed to be in the best interest of the student and of the Faculty of Engineering.

Students with a cumulative weighted grade-point average of at least 5.0 may enrol in a maximum of one full course in addition to the courses of the program year in which they are registered.

Students may enrol in non-elective courses from a higher program year than the one in which they are registered if:

- (a) they have C- or better in the stated prerequisites for such courses; and
- (b) they are concurrently enrolled in all outstanding non-elective courses from the program years preceding the one in which they are registered; and
- (c) they have the permission of the department which offers the course.

Repeated Year

Students who are repeating a year must repeat that year exactly as it is described in the Calendar applicable at the time of repetition.

Mandatory courses in which at least B-, and optional courses in which at least C-, was achieved in the failed year, need not be repeated.

In a repeated year the course load will be either five or six full courses and must be approved by the Dean of Engineering or the Faculty Registrar.

Elective Courses

The program requirements tabulated on pp 301-309 show that each of the first three years includes a Humanities or Social Sciences elective; one of these must be Economics 43.100. Fourth year includes electives from one or more of the categories listed below: a free elective can be chosen from any of the three categories. Where an elective course is shown in the tables with lectures two hours per week and laboratory/problem analysis three hours alternate weeks, the requirement is equally satisfied by a course having three hours lectures per week and no laboratory/problem analysis.

1. Engineering Electives: All undergraduate courses bearing the departmental numbers of the Faculty of Engineering (i.e 82, 88, 94, 97) are approved engineering electives. Graduate courses bearing those numbers may be taken as electives with the approval of both the chairman of the department offering the course and the student's faculty adviser.

2. Scientific Electives: Courses in this classification include the physical sciences, mathematical sciences, computer sciences and related courses. Approved scientific electives are listed in the booklet, *A Guide to Choosing Electives in the Engineering Program*, available from the Faculty of Engineering Registrar's Office.

3. Humanities or Social Sciences Electives: Courses in this classification must be chosen from among those listed as approved in the booklet, *A Guide to Choosing Electives in the Engineering Program*, available from the Faculty of Engineering Registrar's Office.

Student Responsibility

The student is responsible for knowing the regulations of the Faculty of Engineering and for complying with them. Any exceptions to the regulations must be approved, in writing, by the Faculty of Engineering Committee on Admission and Studies. Routine approval of a records form (for example, a registration contract or a course change form) does not constitute approval of an exception.

Grading System

Standing in courses will be determined by the Faculty and will be shown by alphabetical grades. The grades used with their corresponding grade points are as follows:

A+ 12	B+ 9
A 11	B 8
A- 10	B- 7
C+ 6	D+ 3
C 5	D 2
C- 4	D- 1

Passed Supplemental Examination: **D-**

Each course is assigned a course weight, shown on the charts on pp. 301-309. The weighted grade points achieved in a course is the product of the course weight and the grade points for that course. The cumulative weighted grade-point average is the sum of weighted grade points divided by the sum of course weights, for all courses for which the student has received a grade in the program of studies.

Where regulations refer to a full course, it is understood that two half courses are in all respects equivalent to one full course. For this purpose, any course in the Engineering program with a weight of seven or greater is a full course; any course in the engineering program with a weight of six or less is a half-course.

Notations to represent special circumstances are as follows:

Aeg

Aegrotat standing is a pass standing granted despite absence from the final examinations. It may be granted by the Engineering Faculty Committee on Admission and Studies only in response to a student's written request. Aegrotat standing will be granted only in exceptional circumstances and if the term work has been of high quality.

F

Failure; no academic credit.

FNS

Failure, but with supplemental privileges withdrawn because of unsatisfactory term work or an unacceptably low mark in the examination. No academic credit.

Wdn

Withdrawn in good standing; no academic credit.

Abs

Absent from formally scheduled final, special final, supplemental and special supplemental examinations where the necessary term work has been completed. No supplemental privileges. No academic credit.

Def

Students who are absent from final examinations or who are unable to complete their course work for medical or compassionate reasons may apply to the Engineering Faculty Committee on Admission and Studies for deferred examination privileges. Such applications must:

1. be made in writing to the Engineering Faculty Registrar's Office not later than *one week* after the date of the examination; and
2. be fully supported in the case of illness by a medical certificate or appropriate documents in other cases.

Supplemental Examination Privileges

Students who are granted supplemental examination privileges are permitted to write supplemental and/or grade-raising examinations in any courses, from the Winter session just completed, in which they have received a final grade other than *FNS*, *Wdn* or *Abs*, and are permitted to enrol in courses offered in the Summer session.

Students who fail to meet the requirements for the granting of supplemental examination privileges forfeit their undergraduate status in the Faculty of Engineering.

Supplemental examinations for courses in the Faculty of Engineering are scheduled only during the August supplemental period. For certain First-term half-courses in the Faculties of Science, Arts, and Social Sciences, supplemental examinations are scheduled only in the February examination period; engineering students are permitted to write such supplemental examinations during this period.

The requirements for supplemental examination privileges are based on final grades only, for all courses taken in the academic year just completed. The following are the minimum requirements for full-time students:

in First year, not repeating the year:
three full courses passed and 135 weighted grade points;

in Second, Third and Fourth years not repeating the year:
three full courses passed and 150 weighted grade points;

repeating any year:

four full courses passed and 200 weighted grade points.

For part-time students, eligibility for supplemental examinations will be assessed at the end of each group of three full courses and based upon the final grades achieved in those courses. Number of passed courses and weighted grade points required are pro-rated to one-half of those listed above.

Academic Standing

Academic standing for the year is determined, for full-time students, at the beginning of September. Standing is based on all grades achieved during the previous 12-month period including those from supplemental and grade-raising examinations in Winter-session courses and final grades in Summer-session courses. The following are the minimum requirements for satisfactory academic standing for full-time students:

in First year, not repeating the year:

four full courses passed and 180 weighted grade points;

in Second, Third and Fourth years not repeating the year:

four full courses passed and 200 weighted grade points;

repeating any year:

five full courses passed and 250 weighted grade points.

For part-time students, academic standing is determined at the completion of each group of three full courses, using the appropriate criterion above. Number of passed courses and weighted grade points required are pro-rated to one-half of those listed above.

Promotion

Students who achieve satisfactory academic standing are promoted to the next year of the program, except that:

(a) for promotion to Third year, credit is required for all non-elective courses of First year; and

(b) for promotion to Fourth year, credit is required for all non-elective courses of Second year.

Students who fail to achieve satisfactory academic standing will be placed on academic probation and may repeat the year just completed except that:

(a) students failing in a repeated year forfeit their undergraduate status in the Faculty of Engineering; and

(b) students who have previously been on academic probation forfeit their undergraduate status in the Faculty of Engineering.

Students who have forfeited their undergraduate status may make application, to the Office of Admissions, to be considered for re-admission to the Faculty of Engineering.

Graduation

In order to fulfil the minimum graduation requirements for the degree of Bachelor of Engineering, a candidate must:

1. have passed all the courses of the First to Fourth years, inclusive.
2. have a cumulative weighted grade-point average of at least 3.4.
3. have achieved satisfactory academic standing in the final year of study.
4. have a weighted grade-point average of 3.4 on the requirements of the Fourth year program.
5. be recommended for graduation by the Faculty of Engineering.

Degrees with Distinction

Upon recommendation of the Faculty of Engineering, the notation "with High Distinction" may be made on the academic record of a candidate for the degree of Bachelor of Engineering. To receive this recommendation the candidate is expected to obtain a weighted grade-point average of at least 9.0 in the course requirements of the final year and, in addition, a weighted grade-point average of at least 7.8 in the course requirements of the First to Fourth years, inclusive.

Upon recommendation of the Faculty of Engineering, the notation "with Distinction" may be made on the academic record of a candidate for the degree of Bachelor of Engineering. To receive this recommendation the candidate is expected to obtain a weighted grade-point average of at least 7.8 in the course requirements of the final year and, in addition, a weighted grade-point average of at least 6.6 in the course requirements of the First to Fourth years, inclusive.

Academic and Professional Clubs and Societies

The following clubs and societies operating on the campus serve to broaden and enrich the curriculum and to offer students social activity and friendship related to their intellectual interests. The societies listed here are particularly pertinent for students registered in the Faculty of Engineering.

The American Society of Mechanical Engineers — Student Section sponsors field trips, films and speakers on industrial and other aspects of mechanical engineering.

The Canadian Aeronautics and Space Institute meets monthly to provide a forum for discussion and dissemination of information on topics relating to aeronautics and space activities. Faculty Adviser: Dr. R.J. Kind.

The Canadian Society for Civil Engineering promotes technical activities related to all areas of civil engineering, such as building design and construction, geotechnical engineering and transportation. The activities of this group are designed to enhance and broaden the student's appreciation of the profession. To this effect, speakers are brought to the Department of Civil Engineering to give seminars on current topics and visits are organized to construction sites and other facilities where civil engineering has played an important role. Faculty Adviser: Dr. G. Hartley.

The Carleton Student Engineering Society (C.S.E.S.) is open to all members of the University who are enrolled in engineering courses. Through its academic and social activities, C.S.E.S. acts as a liaison between the students and the governing bodies of the University and promotes professional interest, high standards and a spirit of mutual assistance in the study of engineering.

The High School Computer Club is open to nominated high school students who wish to broaden their knowledge of computers through seminars, workshops and hands-on experience, using Carleton's timeshare services. The club meets bimonthly, with weekly computer access. Sponsors: Professor I. Reichstein and Mr. D. Sutherland.

The Student Branch of the *Institute of Electrical and Electronics Engineers (I.E.E.E.)* organizes a series of events of both professional and general interest. Among these activities are an annual "Computer Faire", an employment workshop for upper year students, an annual "papers" night and student-faculty get togethers. Faculty Adviser: Professor J.P. Knight.

Department of Civil Engineering

Officers of Instruction

Chairman
J. Adjeleian

Professors
J. Adjeleian
G.E. Bauer
W.H. Bowes
A.M. Khan
A.P.S. Selvadurai
G.T. Suter

Associate Professors
J.P. Braaksma
G.A. Hartley
J.L. Humar
J.J. Salinas

Assistant Professors
H.M. Holtz
D.R. MacLeod

Adjunct Professors
M.C. Allen
Z.J. Haritos
K.T. Law
W.E. Wright

Sessional Lecturers
G. Lantos
D.R. Townsend

Courses Offered

Engineering 82.104★

Surveying

Surveying principles and practice; measurements of distance, difference in elevation, angles and directions; theory, use and adjustments of principal surveying instruments; theory of errors and weighted measurements; engineering surveys, profile, cross sections, earth-work horizontal and vertical curves; use of rectangular co-ordinates in surveying; area computation by surveying methods; Handling of equipment, note-keeping, and surveying procedures are stressed in the field work.

Text: Brinker, *Elementary Surveying*.

Lectures and field work three weeks at the end of the Second term.

G. Bauer, J.J. Salinas

Engineering 82.111★

Engineering Analysis

Three dimensional statics with vectors. Definition of force and moment. Resultant of a system of forces. Force components. Equilibrium. Applications to trusses, frames and machines. Shear and bending moment diagrams for beams. Introduction to material behaviour. Stress-strain relationships, yield stress,

ultimate stress, Young's modulus, Hooke's law.

Text: Beer and Johnston, *Vector Mechanics for Engineers, Third Edition*.

Second term: Lectures three hours a week, tutorials and problem analysis, three hours a week.

N.M. Holtz, J.J. Salinas

Engineering 82.220★

Mechanics of Materials I

Pin-jointed trusses: forces and stresses in members, safety factor, introduction to design, bolted and riveted connections. Bending and shearing stresses in beams by approximate methods. Stresses in thin-walled cylinders due to internal pressure and torsion. Mohr's circle for stress. Stress-strain relations. Bending stresses in beams. Circular members in torsion. Stress-strain relations in shear. Shearing stresses in beams. Mohr's circle for strain. Introduction to electric resistance strain gauges, principal stresses from strain rosette data. Ultimate loads in bending and torsion. Thermal stresses. Buckling of columns.

Prerequisite: Engineering 82.111★.

Text: Bowes, Russell and Suter, *Mechanics of Engineering Materials*.

One term: Lectures three hours a week, problem analysis and laboratory three hours a week. Offered both terms.

W.H. Bowes, G.A. Hartley

Engineering 82.322★

Mechanics of Materials II

Torsion bars and helical springs, stresses due to torque on non-circular sections, membrane analogy, shear flow, elastic-plastic torsion. Bending and shear stresses in beams of non-symmetrical cross-sections. Properties of areas; principal axes, Mohr's circle of inertia, shear centre. Columns having partial end-constraint, eccentrically loaded columns, beam-columns. Energy methods, minimum potential energy, Castigliano's theorems. Pressure vessels: thin-walled cylinders, membrane shell theory, flat plates. Fatigue: S-N curve, strength reduction factors, loads of varying amplitude. Failure theories.

Prerequisite: Engineering 82.220★.

Text: Bowes, Russell and Suter, *Mechanics of Engineering Materials*.

First term: Lectures three hours a week, problem analysis and laboratory three hours a week.

W.H. Bowes, N.M. Holtz

Engineering 82.323★

Introductory Structural Analysis

Review of plane statics; analysis of statically determinate structures; strain energy, principle of virtual work; influence lines, structural deflections and deformations; degree of indeterminacy and stability of structural systems; analysis of hyperstatic structures; elastic and inelastic instability of structural elements.

Prerequisite: Engineering 82.322★.

Second term: Lectures three hours a week, problem analysis three hours alternate weeks.

G.A. Hartley

Engineering 82.324★

Introductory Structural Design

An introductory course in structural design intended to acquaint the student with the behaviour of typical engineering materials. Introduction to the National Building Code to determine the various loading conditions, factor of safety, and the requirements for the design of beams, columns and connections in steel, concrete and timber.

Prerequisite: Engineering 82.322★.

Second term: Lectures two hours a week, laboratory and problem analysis two hours a week.

J. Adjeleian

Engineering 82.328★

Introductory Soil Mechanics and Engineering Geology

Origin and classification of soils and rocks. Character of natural soil deposits. Soil water. Seepage and permeability of soils. Principle of effective stress. Stress-deformation and strength characteristics of soils and rocks. Consolidation characteristics of soils. Stress distribution in earth masses. Laboratory testing. (Also listed as Geography 45.424★ and Geology 67.417★.)

Prerequisite: Third-year registration.

Second term: Lectures three hours a week, laboratory three hours alternate weeks.

A.P.S. Selvadurai

Engineering 82.333★

Urban Planning

A systematic approach to urban planning. Urbanization in Canada; urban sprawl; data collection; forecasting; standards; space requirements; land use; zoning; transportation; land development; site selection; land capability; layout; evaluation; housing; urban renewal and new towns. (Also listed as Geography 45.433★.)

Prerequisite: Third-year registration.

Second term: Lectures two hours a week, problem analysis three hours alternate weeks.

J.P. Braaksma

Engineering 82.337★

Municipal Engineering

Introduction to fundamentals of municipal engineering. City management; water supply; waste water disposal; sanitation; subdivision layout and servicing; traffic engineering; parks and recreation; protective services; permits and approvals.

Prerequisite: Third-year registration.

Second term: Lectures three hours a week, problem analysis three hours alternate weeks.

J.P. Braaksma

Engineering 82.420★

Structural Analysis I

Theorems relating to structural analysis; review of structural displacements and deformations; influence lines, flexibility analysis of structures; review of matrices, analysis by matrix force method; introduction to stiffness analysis of structures; slope deflection method; matrix formulation of the stiffness method.

Prerequisite: Engineering 82.323★.

References: Beaufait, *Basic Concepts of Structural Analysis*; Michalos and Wilson, *Structural Mechanics and Analysis*, Wright, *Lecture Notes on Elastic Stability*, Carleton University (handed out in class).

First term: Lectures three hours a week, problem analysis three hours alternate weeks.

G.A. Hartley

Engineering 82.421★

Structural Analysis II

Review of matrix force method, formulation of the matrix stiffness method; analysis of continuous beams, plane trusses, plane frames, three-dimensional frames; computer analysis of structures; introduction to finite elements; structural dynamics.

Prerequisite: Engineering 82.420★.

References: Beaufait, *Basic Concepts of Structural Analysis*; Gere and Weaver, *Analysis of Framed Structures*.

Second term: Lectures and tutorials two hours a week, problem analysis three hours alternate weeks.

G.A. Hartley

Engineering 82.422★

Structural Design in Timber

Introduction to structural design in timber. Properties and anatomy of wood. Description of wood products. Factors affecting the strength and structural behaviour of wood structures. Strength evaluation and testing. Allowable stresses. Design in bending, compression and combined stresses. Design of trusses, frames, glulam structures, plywood components. Design of structural systems, formwork, foundations. Connections and connectors. Care, inspection, maintenance and repair of timber structures.

Prerequisite: Fourth-year registration or permission of the department.

First term: Lectures two hours a week, problem analysis three hours alternate weeks.

J.J. Salinas

Engineering 82.423★

Reinforced Concrete I

Based on reinforced concrete behaviour in flexure, compression, shear, and bond, analysis and design concepts are developed for beams, slabs, columns, walls and footings. Introduction to behaviour and design of prestressed concrete.

Prerequisite: Engineering 82.322★.

Texts: Wang and Salmon, *Reinforced Concrete Design*; CSA CAN3 — A23.33-M77 *Code for the Design of Concrete Structures for Buildings*.

First term: Lectures three hours a week, problem analysis three hours alternate weeks.

G.T. Suter

Engineering 82.424★

Soil Mechanics

Geotechnical subsurface investigations, measurement of in-situ properties, plastic equilibrium. Slope stability. Earth dams, analysis of porewater pressures, and settlements. Secondary consolidation. Creep effects.

Prerequisite: Engineering 82.428★.

Text: Terzaghi and Peck, *Soil Mechanics and Foundation Engineering*.

Reference: Taylor, *Fundamentals of Soil Mechanics*.
Second term: Lectures two hours a week, problem analysis three hours alternate weeks.

A.P.S. Selvadurai

Engineering 82.425★

Design of Structural Steel Components

Design process, codes and standards, structural loads, load combinations, load factors, performance factors, steel as a structural material. Design of axially loaded tension and compression members, design of beams in flexure, design of members subjected to combined compression and flexure, design of welded and bolted connections.

Prerequisite: Engineering 82.322★.

Texts: Adams, Krentz and Kulak, *Limit States Design in Structural Steel*; *National Building Code of Canada*; *CISC Limit States Design Steel Manual*.

First term: Lectures three hours a week, problem analysis three hours alternate weeks.

J.L. Humar

Engineering 82.426★

Design of Steel Structures

Steel building design: the design process, structural loads, gravity load design of floor systems, beams, girders, two cycle moment distribution; column gravity loads and moments and design; lateral loads, methods of lateral load resistance, design considerations; bracing system analysis for loads and drift; approximate frame analysis for loads and drift; $P\Delta$ effect; estimating steel costs; introduction to plastic design.

Prerequisites: Engineering 82.425★ and Fourth-year registration.

References: *National Building Code of Canada (1977)*; *CISC Limit States Design Steel Manual*.

Second term: Lectures two hours a week, problem analysis three hours alternate weeks.

J. Humar

Engineering 82.427★

Reinforced Concrete II

Prestressed concrete design including pre-tensioned and post-tensioned members, prestressing losses, cable profiles, ultimate strength, shear and diagonal tension, bond and end block considerations. Introductory concrete bridge design including bridge types, loadings, procedures for single span slab, T-beam and AASHTO girder bridges, diaphragms and bearing design. Basic building design in reinforced and prestressed concrete.

Prerequisite: Engineering 82.423★.

Texts: Nilson, *Design of Prestressed Concrete*; Wang and Salmon, *Reinforced Concrete Design*.

Second term: Lectures two hours a week, problem analysis three hours alternate weeks.

G.T. Suter

Engineering 82.428★

Geotechnical Engineering

Site investigations. In-situ testing, techniques and their interpretation; ground water observations, piezometers. Sampling, seismic investigations. Earth pressures; at rest, active and passive conditions. Design of gravity, semi-gravity and anchored sheet pile walls. Effects of ground-water flow. Ground and rock anchors, strutted excavations. Bearing capacity of strip, circular and rectangular footings on cohesive and cohesionless soils. Pile foundations, group action, load distribution in pile groups, bearing capacity. Settlement of foundations. Stability of earth slopes.

Prerequisite: Engineering 82.328★.

Text: Bowles, *Foundation Analysis and Design*, *Canadian Foundation Engineering Manual*.

Reference: Winterkorn and Fang, *Foundation Engineering Handbook*.

First term: Lectures three hours a week, problem analysis three hours alternate weeks.

A.P.S. Selvadurai

Engineering 82.429★

Highway Engineering

Highway planning, economics and finance; highway location and geometric design; traffic engineering; highway drainage and subgrade structure; structural analysis and design of rigid and flexible pavements; mineral aggregates; bituminous mix design; principles of frost action and applications to highway design.

Prerequisite: Fourth-year registration.

Text: Oglesky, *Highway Engineering, Third Edition*.
References: Wright and Paquette, *Highway Engineering, Fourth Edition*; Yoder and Witzah, *Principles of Pavement Design*.

Second term: Lectures two hours a week, problem analysis three hours alternate weeks.

D.R. MacLeod

Engineering 82.430★

Structural Planning in Architecture

The nature of structural planning problems; general criteria in structural planning; functional, technical, economic and form considerations; loads, classification and estimation; building codes, fire resistance requirements; structural systems; various classifications; comparative study; integration of structural systems with other building systems; synthesis preliminary analysis and evaluation of alternative structural schemes; case studies. (Also listed as Architecture 77.424★.)

Prerequisites: Fourth-year registration and permission of the department.

References: Schodek, *Structures*; White-Gergely-Sexsmith, *Structural Engineering*.

Second term: Lectures two hours a week, problem analysis three hours alternate weeks.

J. Adjeleian

Engineering 82.431★

Foundation Engineering

A critical study of the theories in soil mechanics and their application to the solution of geotechnical engineering problems. Field investigations, laboratory and field testing, special footings, mat foundations, caissons, pile foundations and excavations. Discussion of new methods and current research.

Prerequisite: Engineering 82.428★.

Text: Bowles, *Foundation Analysis and Design*; *Foundation Engineering Manual*, Canadian Geotechnical Society.

References: Winterkorn and Fang, *Foundation Engineering Handbook*.

Second term: Lectures two hours a week, laboratory three hours alternate weeks.

G.E. Bauer

Engineering 82.434★

Transportation

Transportation within the socio-economic environment. Transportation systems and components. Vehicle motion and flow. Transportation terminals. Operations plans. Transportation costs. Transportation demand. Supply of transportation. Transportation network flows. Environmental impacts. Introduction to planning, management and design process. (Also listed as Geography 45.434★.)

Prerequisite: Third-year registration.

Text: Morlok, *Introduction to Transportation Engineering and Planning*, 1978.

First term: Lectures two hours a week, problem analysis three hours alternate weeks.

A.M. Khan

Engineering 82.435★

Transportation Geography

Offered in the Department of Geography, as Geography 45.442★.

Engineering 82.437★

Hydraulics of Municipal Waste Water Systems

Hydraulics of sewers flowing partially full, flow in sewer junctions and transitions; estimates of amounts of sanitary and storm sewage; design of sewage collection systems; pumps, control, and measuring devices. Hydraulics of treatment processes, disposal problems.

Prerequisite: Fourth-year registration.

Second term: Lectures two hours a week, problem analysis three hours alternate weeks.

D.R. Townsend

Engineering 82.440★

Construction/Project Management

Systems approach to project planning and control. Analysis of alternative network planning methods: CPM, precedence and PERT. Planning procedure, computer techniques and estimating. Physical, economic and financial feasibility. Implementation feedback and control. Case studies.

Prerequisite: Fourth-year registration.

Text: Nunnally, *Construction Methods and Management*. First term: Lectures two hours a week, problem analysis three hours alternate weeks.

D.R. MacLeod

Engineering 82.441★

Hydrology

Hydrologic cycle, stream flow, hydrology of snow, sub-surface water, hydraulics of wells, unit hydrograph and S-curve analysis of flood flows, infiltration, river and reservoir routing, introduction to statistical inference and time series analysis of hydrologic data. (Also listed as Geology 67.419★.)

Text: DeWeist, *Geohydrology*.

References: Gray, *Principles of Hydrology*; Bruce and Clark, *Introduction to Hydrometeorology*.

First term: Lectures two hours a week, problem analysis three hours alternate weeks.

G.E. Bauer

Engineering 82.480★

Resources Planning

Introduction to the nature, characteristics, problems and theories related to the use of resources. Systematic approach to resources planning and management. Concepts and methods of analysis, evaluation, programming and resources allocation.

Prerequisite: Third-year registration.

Text: Thuesen, et al., *Engineering Economy, Fifth Edition* (1977).

References: Recent publications.

Second term: Lectures two hours a week, problem analysis three hours alternate weeks.

A.M. Khan

Engineering 82.497

Engineering Project

As a part of the Fourth-year program, each student is required to select and complete a major project in engineering analysis, design development or research. The objective is to provide an opportunity to develop initiative, self reliance, creative ability and engineering judgment. The results must be submitted in a comprehensive report with appropriate drawings, charts, bibliography, etc. Each student is required to submit his or her engineering project proposal to the Chairman of the Department of Civil Engineering on or before the last day of classes in September.

Students enrolled in the Fourth-year civil engineering option may elect to satisfy the project requirements by successfully completing two workshop courses from Division B in the School of Architecture with the approval of the Chairman of the Department of Civil Engineering.

Department of Electronics

Officers of Instruction

Chairman

A.R. Boothroyd

Professors

A.R. Boothroyd

M.A. Copeland

R.G. Harrison

R.E. Thomas

Associate Professors

C.H. Chan

J.P. Knight

P.D. van der Puije

J.S. Wight

Assistant Professor

B.A. Syrett

Adjunct Professors

V. Makios

S. Stuchly

Sessional Lecturer

S. Entwistle

Courses Offered

Engineering 97.251★

Circuits and Signals

Nature and properties of signals. Circuit elements: definitions and basic properties. Voltage and current sources. Kirchoff's laws, linearity, and superposition. Thevenin and Norton Theorems: circuit simplification techniques; resistance circuits, AC signals; phasors. AC steady state analysis: impedance, admittance and transfer properties; frequency response; detailed treatment of first order (RL and RC) circuits. Thevenin and Norton Theorems: AC steady state analysis; circuit reductions. Transient response: first order circuits, form of response; initial and final condition; relation to AC steady state properties. Properties of LCR circuits: AC steady state response; resonance. Prerequisites: Physics 75.100 or 75.233★ and concurrent registration in Mathematics 69.201.

Text: Williams, *Introduction to Electrical Circuit Theory*.

First term: Lectures three hours a week, laboratory and problem analysis three hours a week.

C.H. Chan, J.P. Knight

Engineering 97.354★

Electromagnetic Theory

Vector analysis: gradient, divergence, curl and Laplacian. Divergence theorem, Stokes theorem, Maxwell's equations. Electrostatic fields, Coulomb's law, Gauss' law, Poisson and Laplace equations. Image and iteration techniques. Boundary value problems. Force and

energy. Magnetostatic fields, Ampere's law, Biot-Savart law. Time varying fields, skin effect.

Precludes additional credit for Engineering 97.454★. Prerequisites: Mathematics 69.375★, Engineering 94.261★.

Text: Plonus, *Applied Electromagnetics*.

Second term: Lectures and tutorials three hours a week.

Engineering 97.357★

Electronics I

A course which treats the introductory aspects of electronics. Topics covered are: semi-conductor diodes; theory and applications. Bipolar transistors: theory, biasing circuits, linear amplifier design. Operational amplifier applications. Application of digital circuits; combinatorial and elementary sequential digital circuits.

Prerequisites: Engineering 97.251★; Mathematics 69.201 (may be taken concurrently).

Text: Chirlian, *Analysis and Design of Integrated Electronic Circuits*.

First term: Lectures three hours a week, laboratory and problem analysis three hours a week.

M.A. Copeland, R.G. Harrison

Engineering 97.359★

Electronics II

This course builds upon the material of Engineering 97.357★ and acts as a bridge between discrete and integrated circuits. The laboratory is design-oriented and includes project activities. Topics: Introduction to physical nature of semiconductor devices and integrated circuits. DC, small signal AC and switching properties of bipolar and field effect transistors. Transistor inverters, switches and logic gates. Bistable circuits; registers and counters. Monostable flip-flops and timing. Astable multivibrators. Linear amplifiers (small signal); high frequency response and bandwidth considerations; two-port analysis. Large signal amplifiers; class A, B and C operation; power amplifiers; transformer-less circuits. Feedback amplifiers and oscillators; considerations of gain, sensitivity, distortion and stability of amplifiers; oscillator circuits.

Prerequisites: Engineering 97.357★ and 94.360★.

Text: Chirlian, *Analysis and Design of Integrated Electronic Circuits*.

Second term: Lectures three hours a week, laboratory three hours a week.

P.D. van der Puije

Engineering 97.450★

Electronic Circuit and System Design

Aspects of design of digital and analog integrated circuits as circuit blocks for the realization of required system functions are treated, with project activities in the laboratory. Topics include differential amplifiers; operational amps – non ideal aspects; slew rate, gain error, sensitivities. Active filter design. D/A and A/D conversion. MS1 and LS1 digital circuits, combinatorial and sequential: decoders, encoders, multiplexers, ROM's, counters, controllers.

Prerequisites: Engineering 97.359★ and 94.367★.

Text: Mitra, *An Introduction to Digital and Analogue Integrated Circuits and Applications*.

References: Burr Brown, *Operational Amplifiers*; Blakeslee, *Digital Design with Standard MS1 and LS1*.

Lectures two hours a week, laboratory three hours a week.

M.A. Copelans

Engineering 97.452★

Microwave Circuits

Introduction to the principles of operation and the properties of important microwave tubes, semiconductor devices, and passive components. Scattering matrix description of microwave junctions. Properties of basic reciprocal and non-reciprocal passive microwave devices (hybrids, tuners, impedance transformers, cavities, filters, attenuators, isolators and circulators). Fundamentals of microwave amplifiers and oscillators. Design of solid-state microwave amplifiers and oscillators in coaxial, waveguide and microstrip transmission media.

Prerequisite: Engineering 97.453★

Text: Liao, *Microwave Devices and Circuits*.

Second term: Lectures two hours a week, laboratory and problem analysis three hours alternate weeks.

B.A. Syrett

Engineering 97.453★

Transmission Lines and Antennas

Introduction to transmission lines; transmission lines as distributed circuit elements, travelling waves and standing waves, reflection coefficient, standing wave ratio, impedance transformation, Smith Charts, stub matching, quarter wave transformers, half wave filters, transients. Introduction to guided waves; coaxial transmission lines, rectangular waveguide, waveguide resonators, optical fibers. Introduction to antennas; infinitesimal linear element, half wave dipole, field equations, near and far fields, radiation resistance, gain, directivity, effective area. Introduction to linear arrays; array polynomial, broadside array, end fire array. Laboratory on microwave measurements and techniques.

Prerequisite: Engineering 97.354★.

Text: Sinnema, *Electronic Transmission Technology: Lines, Waves and Antennas*.

Second term: Lectures three hours a week, laboratory three hours alternate weeks.

J.S. Wight

Engineering 97.459★

Communication Links

Free space communication links. Transmission fundamentals; decibel, SNR, noise figure, intermodulation distortion, antenna gain, EIRP. Line-of-sight microwave links; free space propagation loss, earth's bulge, Fresnel clearance, FM transmitter, horn feeds, parabolic antennas, FM receiver, diversity techniques, NPR, fade margin, repeaters. Satellite links; earth

space window, path loss up and down link calculations, G/T, C/T, multiple accessing, earth station subsystems. Tropospheric scatter links; fading, path loss, take-off angle, equipment. Millimeter wave links; propagation, rainfall loss, systems, short hop. High frequency radio links; ionosphere, skywaves, systems, rhombic and log periodic antennas, diversity techniques.

Prerequisite: Engineering 97.453★.

Text: R. Freeman, *Telecommunications Transmission Handbook*.

Second term: Lectures three hours a week.

J.S. Wight

Engineering 97.468★

Solid State Electronics

Fundamentals of solid state physics. Injection and current flow processes in semiconductors. Theory of the p-n junction; diode mechanism and characteristics; solar cells. Bipolar transistor; internal theory; DC, high frequency and switching characteristics; charge control. Surface devices; MOS capacitor, CCD. Field effect transistors; internal theory and performance characteristics. Integrated circuits. Special purpose devices. Aspects of device fabrication technology. Laboratory gives introduction to device mechanisms and performance characterization.

Prerequisite: Engineering 97.357★.

Text: Streetman, *Solid State Device Electronics, Second Edition*.

First term: Lectures three hours a week, laboratory three hours alternate weeks.

A.R. Boothroyd

Engineering 97.469★

Integrated Circuit Design and Fabrication

A course aimed at the design of integrated circuits at the physical level in terms of available technologies, to realize specified circuit functions. Fabrication processes for integrated circuits and discrete devices, monolithic, thick and thin film technologies; are covered. Properties and design considerations for devices (diodes, bipolar transistors, junction and insulated gate field effect transistors, resistors, and capacitors) and integrated circuits are related to these processes. Linear and digital integrated circuit design examples are presented. Laboratory work involves the design and fabrication of integrated circuits.

Prerequisites: Engineering 97.468★.

Text: Colclasser, *Microelectronics: Processing and Device Design*.

References: Grove, *Physics and Technology of Semiconductor Devices*; Penney and Lau, *MOS Integrated Circuits*; Glaser and Subak-Sharpe, *Integrated Circuit Engineering*.

Second term: Lectures two hours a week, laboratory three hours alternate weeks.

R.E. Thomas

Engineering 97.475★

Electronic Properties of Materials

Electrical conduction and conductor materials; electrical insulators and dielectrics including ceramics, plastics, rubbers and composite materials; printed circuit and thin film techniques; electrical emission and emitter materials; magnetism and magnetic materials; optical properties including photographic images and luminescence; optical materials; electronic packaging materials.

Prerequisites: Engineering 88.270★ and 97.251★.

References: Ralls, Courtney and Wulff, *An Introduction to Materials Science Engineering*.

Second term: Lectures three hours a week.

S. Entwistle

Engineering 97.476★

Digital Integrated Electronics

This course is intended to follow Engineering 97.450★, Electronic Circuit and System Design, and to be concerned with circuit design at a more advanced level in terms of digital integrated circuit components, to realize overall system objectives. Consideration is given to design in terms of available IC components and also to system design in custom LS1 format. An important aspect of the course is the laboratory, in which students will gain experience in the use of integrated circuits in project activities.

Prerequisite: Engineering 97.450★.

Second term: Lectures two hours a week, laboratory and problem analysis three hours a week.

J.P. Knight

Engineering 97.477★

Analog Integrated Electronics

A course that develops on the linear integrated circuit aspects covered in Engineering 97.450★, Electronic Circuit and System Design. Integration aspects of active filters and other signal processing circuits are covered in both linear and sampled analog techniques, as well as A/D and D/A converters. Interfacing between analog and digital. Noise aspects, including dynamic range and signal to noise ratio.

Prerequisite: Engineering 97.450★.

Second term: Lectures two hours a week, laboratory and problem analysis three hours a week.

M.A. Copeland

Engineering 97.497 or 97.498

Engineering Project

As part of the Fourth-year program, each student is required to select and complete a major project in engineering analysis, design, development or research. The objective is to provide an opportunity to develop initiative, self reliance, creative ability and engineering judgment. The results must be submitted in a comprehensive report with appropriate drawings, charts, bibliography, etc. Each student is required to submit his or her engineering project proposal to the Chairman of the Department of Electronics on or before the last day of classes in September.

Note:

Students in the Electronics stream should register in Engineering 97.498; in the General stream with supervision in the Department of Electronics, Engineering 97.497; in the Computer Systems Engineering stream, Engineering 94.498; in the General stream with supervision in the Department of Systems and Computer Engineering, Engineering 94.497.

Department of Mechanical and Aeronautical Engineering

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Officers of Instruction

Chairman

J.A. Goldak

Professors

A.N. Abdelhamid

M.J. Bibby

M.C. de Malherbe

J.A. Goldak

G. Kardos

R.J. Kind

J. Kirkhope

J. Lukasiewicz

E.G. Plett

J.T. Rogers

H.I.H. Saravanamuttoo

J.Y. Wong

Associate Professors

R. Bell

F.W. Black

Assistant Professor

S. Sjolander

Instructors

L.A. Beresford

R.S. Dick

M. O'Neill

Adjunct Professors

R.E. Gagné

Sessional Lecturers

J.R. Baillot

D. Boyd

J.H. Coleman

R. Dukkupati

L.T. Filotas

D.W. Laurie-Lean

N.M. Standen

W. Tyson

D.W. Webster

Courses Offered

Engineering 88.100

Engineering Graphics and Design

Mechanical drawing: orthographic projection; auxiliary views; sections and conventions; oblique and isometric drawings; dimensions, notes, fits and tolerances; threads and fasteners; working drawings; mapping. Descriptive geometry: point, line and plane problems; intersections and developments. Engineering communication: data presentation by graphs and charts; pictorial sketching; introduction to design. Graphical solutions: slide rules; nomographs; graphical statics including solution to simple truss problems.

Lectures and tutorials two hours a week, laboratory four hours a week.

F.W. Black

Engineering 88.211★

Dynamics

Kinematics and kinetics of particles: rectilinear and curvilinear motions; Newton's second law; energy and momentum methods. Kinematics and kinetics of rigid bodies: plane motion of rigid bodies; forces and accelerations; energy and momentum methods. Mechanical vibrations.

Prerequisites: Engineering 82.111★ and Mathematics 69.107★ and 69.117★.

Text: Beer and Johnston, *Vector Mechanics for Engineers: Dynamics*.

One term: Lectures three hours a week, problem analysis three hours a week. Offered both terms.

J.Y. Wong

Engineering 88.230★

Introductory Fluid Mechanics

Fluid properties. Units. Fluid statics; pressure distribution in fluid at rest; hydrostatic forces on plane and curved surfaces; buoyancy. Kinematics and dynamics of fluid motion: concepts of streamline, control volume, steady and one-dimensional flows; continuity, Euler, Bernoulli, steady flow energy, momentum and moment of momentum equations; applications.

Prerequisites: Mathematics 69.107★ and 69.117★ and Engineering 82.111★.

One term: Lectures three hours a week, laboratory and problem analysis three hours alternate weeks. Offered both terms.

R.J. Kind

Engineering 88.240★

Introductory Thermodynamics

Basic concepts of heat, work, temperature, property, state, system, control volume. The First Law for systems and control volumes with applications, properties of pure substances, phase diagrams. The perfect gas laws and relations. The Second Law and its corollaries, entropy from classical approach. Properties of gas mixtures. Analysis of simple cycles.

Prerequisites: Mathematics 69.107★ and 69.117★, Chemistry 65.111★ and Physics 75.100.

Reference: Van Wylen and Sonntag, *Fundamentals of Classical Thermodynamics*.

One term: Lectures and tutorials three hours a week, problem analysis and laboratory three hours a week. Offered both terms.

H.I.H. Saravanamuttoo

Engineering 88.270★

Elements of Materials Engineering

The student is introduced to the structure of engineering materials and their behaviour in service and manufacturing. The topics presented are the following: the structure of engineering materials; the elastic and plastic behaviour of materials; alloys, phase-diagrams, solid solutions, eutectic and eutectoid materials;

steels; heat treatment and strengthening mechanisms in metals and alloys; failure mechanisms.

Prerequisites: Physics 75.100, Chemistry 65.111★, Mathematics 69.107★ and Engineering 82.220★ (may be taken concurrently).

Texts: Goldak, *Materials Engineering*; Bibby, *Materials Engineering Laboratory Manual*; Goldak, *Solutions to Problems in Engineering* 88.270★.

One term: Lectures and tutorials three hours a week, problem analysis and laboratory three hours a week. Offered both terms.

M.J. Bibby

Engineering 88.301★

Measurement and Instrumentation in Engineering

Measurement principles and basic definitions; standards. Accuracy and error analysis; measurement statistics. Instrument systems; sensing devices, transmitting devices, terminating devices. Typical systems and devices for measuring quantities such as temperature, pressure, flow, size, displacement, velocity, acceleration, force, power, stress and strain. Analog methods of measurement. Dynamics of measurement. Data presentation and curve fitting. Laboratory experience will be provided in the various laboratories of the faculty.

Not offered 1982-83.

Engineering 88.302★

Machine Design and Practice

The design of mechanical machine elements is studied from a theoretical and practical point of view. Topics covered are: design factors, fatigue, shafting, springs, gearing, bearings, flexible drive elements, brakes and clutches, fasteners and welded structures. Problem analysis emphasizes the application to real mechanical engineering problems.

Text: Deutschman et al, *Machine Design*.

Second term: Lectures three hours a week, problem analysis three hours a week.

G. Kardos

Engineering 88.304★

Dynamics of Machinery

Kinematic and dynamic analysis and synthesis of mechanisms and machines. Design and analysis considerations in reciprocating and rotating machinery. Vibrations in machinery, vibrations of systems with more than one degree of freedom. Vibration and shock isolation. Experimental investigation of dynamic systems.

Prerequisite: Engineering 88.211★.

References: Martin, *Kinematics and Dynamics of Machines*; Thomson, *Vibration Theory and Applications*. Second term: Lectures three hours a week.

Engineering 88.333★

Fluid Mechanics and Heat Transfer

Review of the fundamental equations for one-dimensional ideal fluid flow, dimensional analysis and similarity, introduction to boundary layers, the causes

of drag, one-dimensional steady isentropic flow, normal shock waves, open channel flow. One-dimensional steady heat conduction, elements of potential theory for steady two-dimensional heat conduction and fluid flow, analog methods, introduction to convection and radiation heat transfer.

Prerequisite: Engineering 88.230★.

First term: Lectures three hours a week, problem analysis and laboratory three hours a week.

J. Lukasiewicz

Engineering 88.340★

Applied Thermodynamics

Mixture of perfect gases and vapours, psychrometry, combustion processes, differences between real and ideal cycles, gas cycles and vapour cycles for power and refrigeration plant, principles of turbomachines. Prerequisites: Engineering 88.240★ and Third-year registration.

Reference: Rogers and Mayhew, *Engineering Thermodynamics, Work and Heat Transfer*.

Second term: Lectures three hours a week.

H.I.H. Saravanamuttoo

Engineering 88.370★

Principles of Manufacturing Engineering

Manufacturing unit processes and material considerations. Casting techniques: solidification and heat flow theory, defect formation, casting design. Metal forming: elementary plasticity theory, plastic failure criteria, force and work calculations. Powder forming techniques: theory and practice of powder consolidation, design considerations. Joining techniques: heat flow and defect formation theory, residual stresses. Machining theory and practice. Heat treatment and surface hardening: diffusion theory, principles of wear resistance.

Prerequisite: Engineering 88.270★.

Text: Bibby, *Principles of Manufacturing Engineering*. Second term: Lectures and tutorials three hours a week.

M.J. Bibby

Engineering 88.390★

Mechanical Engineering Laboratory

A laboratory course in which each student performs a series of laboratory exercises dealing with a wide range of mechanical engineering topics. This course is intended to give students the opportunity to relate theory and practice and to provide experience with modern engineering equipment and measurement techniques. Good reporting practice is emphasized. Second term: Laboratory six hours a week.

M.C. de Malherbe

Engineering 88.403★

Mechanical Systems Design

The course emphasizes the design of mechanical systems. Topics to be covered include: establishing design criteria, conceptual design, design economics, value analysis, synthesis, optimization. The problem

analysis involves synthesis of real life mechanical systems.

Prerequisite: Engineering 88.302★.

Reference: Selected readings from *Machine Design*.
First term: Lectures three hours a week, problem analysis three hours a week.

G. Kardos

Engineering 88.406★

Transport Technology

The course emphasizes the engineering and design principles of road transport technology. Topics to be covered include: performance characteristics, handling behaviour, and ride quality of road vehicles. The problem analysis and laboratory involve the prediction and evaluation of the performance of road transport systems.

Prerequisite: Engineering 88.211★.

Text: Wong, *Theory of Ground Vehicles*.

First term: Lectures two hours a week, problem analysis and laboratory three hours alternate weeks.

J.Y. Wong

Engineering 88.411★

Strength Analysis

This course is to extend the student's ability in design and stress analysis of machine structures. Topics include: theory of elasticity, stress function approach in elasticity, stress concentrations, experimental stress analysis, plasticity, introduction to creep analysis, bending of thin axisymmetric plates and shells and introduction to the finite element method of stress analysis.

Prerequisite: Engineering 82.322★.

References: Budynes, *Advanced Strength and Applied Stress Analysis*; Juvinall, *Stress, Strain and Strength*.

First term: Lectures three hours a week.

R. Bell

Engineering 88.412★

Failure Analysis and Non-Destructive Testing

The course provides a basis for identifying the cause of a failure and guiding an engineer in altering design, manufacturing and operating conditions or in selecting an alternate material. The course describes: causes and consequences of failures; morphology of fracture surfaces of ductile, brittle, fatigue, creep and corrosion failures; non-destructive testing with emphasis on radiography; defects in metals. Several important case histories are discussed.

References: Wulpi, *How Components Fail*; *Source Book in Failure Analysis*, ASM 1974; Thielsch, *Defects and Failures in Pressure Vessels and Piping*; Barer and Peters, *Why Metals Fail*.

Second term: Lectures and tutorials three hours a week.

W. Tyson

Engineering 88.414★

Vibration and Acoustics

Transient vibrations of single-degree of freedom systems. Free and forced vibrations of two-degrees of freedom systems. Numerical methods for multi-degree of freedom systems; influence coefficients; Dunkerley's equation; orthogonality of principal modes; method of matrix iteration; the Holzer-type problem; geared and branched systems. Vibration of continuous systems; longitudinal and torsional vibration of rods; lateral vibration of beams. Acoustic waves; relationships among pressure, velocity and density fluctuations; levels, decibels and reference quantities; power spectrum; sound in large rooms; reverberation time; mufflers design and selection; sources of noise in industry.

Prerequisite: Engineering 88.304★.

References: Thomson, *Theory of Vibration with Applications*; Irwin and Graf, *Industrial Noise and Vibration Control*.

First term: Lectures three hours a week.

J.Y. Wong

Engineering 88.430★

Control of Noise Pollution

Behaviour of sound waves. Selection of instrumentation. Practical acoustical measurements. Measurements of power level and directivity patterns. Sound propagation outdoors. Sound in small and large enclosures. Properties of porous acoustic materials. Transmission and radiation of acoustic waves by solid structures. Noise control in ventilation systems. Case histories of machine and shop quieting, office buildings and homes. Noise control in transportation.

Prerequisite: Third-year registration.

References: Beranek, *Noise Reduction*; Harris, *Handbook of Noise Control*; Kinsler and Frey, *Fundamentals of Acoustics*.

Second term: Lectures two hours a week, laboratory and problem analysis three hours alternate weeks.

N. Standen

Engineering 88.432★

Fluid Dynamics

Equations of fluid dynamics for elementary control volume in common co-ordinate systems. Incompressible nonviscous flow. Compressible steady nonviscous flow: isentropic one-dimensional flow, normal and oblique shock waves, expansion waves, wave interaction and reflection, introduction to unsteady flow. Viscous flow: Navier-Stokes equation, Poiseuille flow, Couette flow, hydrodynamic lubrication, boundary layers, Blasius solution, approximate methods and solutions, drag, boundary layer growth and stability, separation, control techniques.

Prerequisite: Engineering 88.333★.

References: Duncan, Thom and Young, *Mechanics of Fluids*; Eskinazi, *Principles of Fluid Mechanics*.

First term: Lectures and tutorials two hours a week, laboratory three hours alternate weeks.

Engineering 88.435★

Fluid Machinery

Types of fluid machines. Dimensional analysis and similarity, performance parameters, performance characteristics, running points. Cavitation and water hammer. Velocity triangles, Euler pump and turbine equation, impulse and reaction. Radial-flow pumps, fans and compressors: analysis and design, surging, series and parallel operation. Radial-flow and mixed-flow turbines. Axial-flow pumps, fans and compressors: analysis and design by cascade and blade-element methods, staging, off-design performance. Axial-flow turbines. Fluid couplings and torque converters.

Prerequisite: Engineering 88.333★.

References: Shepherd, *Principles of Turbomachinery*; Csanady, *Theory of Turbomachines*.

First term: Lectures two hours a week, laboratory three hours alternate weeks.

R.J. Kind

Engineering 88.437★

Mechanics of Flight

Elements of airplane aerodynamics; static stability and control. Performance analysis, including drag estimation, speed, payload, range, endurance, take-off and landing. Introduction to operating economics.

Prerequisite: Engineering 88.333★.

References: Anderson, *Introduction to Flight*; McCormick, *Aerodynamics of V/STOL Flight*.

Second term: Lectures and tutorials three hours a week.

D.W. Laurie-Lean

Engineering 88.441★

Power Plant Analysis

Criteria of merit; selection of power plant for transportation and power generation applications; interrelation among mechanical, thermodynamic and aerodynamic design processes; jet propulsion, turbojets and turbofans; alternative proposals for vehicular power plant; combined cycle applications.

Reference: Cohen, Rogers and Saravanamuttoo, *Gas Turbine Theory*.

Prerequisite: Engineering 88.240★.

Second term: Lectures and tutorials three hours a week.

H.I.H. Saravanamuttoo

Engineering 88.443★

Energy Conversion and Power Generation

Energy sources and resources. Basic elements of power generation. Hydro-electric, fossil-fuel and fissile-fuel power plants. Other methods of conversion. Future methods of conversion. Economic and environmental considerations. Power generation systems. Future power needs.

Prerequisite: Engineering 88.240★.

Second term: Lectures two hours a week, problem analysis and laboratory three hours alternate weeks, power plant visits.

J.T. Rogers

Engineering 88.446★

Heat Transfer

An introduction to the mechanisms of heat transfer with emphasis on the basic fundamentals and practical solutions. Steady and transient conduction: solution by analytical and numerical methods as well as the electrical analog techniques. Convective heat transfer: free and forced convection for laminar and turbulent flows; heat exchangers. Heat transfer by radiation between black and grey surfaces, radiation shields, solar radiation. Boiling and condensation heat transfer. Selected applications including heat pipes and environmental heat transfer processes.

Prerequisites: Engineering 88.333★ and Fourth-year registration.

References: Chapman, *Heat Transfer*; Hsu, *Engineering Heat Transfer*.

First term: Lectures three hours a week.

E.G. Plett

Engineering 88.447★

Heating, Ventilating and Air Conditioning

Comfort. Environmental demands for residential, commercial and industrial systems. Methods of altering and controlling environment. Air distribution. Refrigeration methods, equipment and controls. Integrated year-round air-conditioning and heating systems; heat pumps. Cooling load and air-conditioning calculations. Thermal radiation control. Component matching. System analysis and design.

Prerequisites: Engineering 88.240★ and Third-year registration.

Second term: Lectures and tutorials two hours a week, problem analysis three hours alternate weeks.

Engineering 88.452★

Mechanical Feedback Control Systems

Mechanical, pneumatic, electrical and hydraulic feedback control systems; analysis and synthesis. Transfer functions and stability analysis using Laplace transforms. Time and frequency domain performance criteria. Laplace domain and frequency domain design techniques. Introduction to z-transforms and sampled data control systems. Laboratory experiments include analysing and setting up mechanical, thermal and fluid systems.

Prerequisites: Mathematics 69.375★ and Engineering 94.360★.

Text: Shinnars, *Modern Control System Theory and Applications, Second Edition*.

Reference: R.C. Dorf, *Modern Control Systems, Second Edition*.

Second term: Lectures two hours a week, laboratory three hours alternate weeks.

R.E. Gagné

Engineering 88.472★

Manufacturing Processes — Deformation

Yield theories, upper bound theory applied to punching, extrusion, wire drawing, deep drawing and rolling. Powder metallurgy. Metal cutting-theory, cutting tool

materials, cutting fluids, economics. Chemical and electrical machining processes.

Prerequisite: Engineering 88.270★.

Text: Backofen, *Deformation Processing*.

References: Avitzur, *Metal Forming: Processes and Analysis*; Armarego and Brown, *The Machining of Metals*.

Second term: Lectures and tutorials three hours a week.

M.J. Bibby

Engineering 88.473★

Engineering Materials

A discussion of the general engineering basis for selecting materials in design including the materials science principles, material stability, ease of fabrication and cost. The emphasis is on presentation of a general overall view of materials. Lectures deal with ferrous and non-ferrous materials, woods, plastics, ceramics, concretes, rubbers, paints and composites. Precludes additional credit for Engineering 88.372★.

Prerequisite: Engineering 88.270★.

Not offered 1982-83.

Engineering 88.491★

Mechanical Engineering Laboratory II

A laboratory course in which each student performs a series of laboratory exercises dealing with a wide range of mechanical engineering topics. This course is intended to give students the opportunity to relate theory and practice and to provide experience with modern engineering equipment and measurement techniques. Good reporting practice is emphasized. First term: Lectures and tutorials one hour a week, laboratory five hours a week.

M.C. de Malherbe

Engineering 88.495★

Professional Practice Seminar

This course is intended to familiarize future professional engineers with current engineering practice and its relationship to other disciplines and to society in general. A sequence of seminars will be presented by faculty and external lecturers covering topics such as ethics, engineering law, research and the responsibilities of professional engineers. The development of communication skills, both oral and written, will be emphasized.

Second term: Seminars three hours a week.

G. Kardos

Engineering 88.497

Engineering Project

As part of the Fourth-year program, each student is required to select and complete a major project in engineering analysis, design, development or research. The objective is to provide an opportunity to develop initiative, self reliance, creative ability and engineering judgment. The results must be submitted in a comprehensive report with appropriate drawings, charts, bibliography, etc. Each student is required to submit his or

her engineering project proposal to the Chairman of the Department of Mechanical and Aeronautical Engineering on or before the last day of classes in September.

G. Kardos

Department of Systems and Computer Engineering

Officers of Instruction

Chairman
B. Pagurek

Professors
B.A. Bowen
R.J.A. Buhr
D.C. Coll
D.A. George
M.A. Gullen
A.R. Kaye
B. Pagurek
J.S. Riordon
C.M. Woodside

Associate Professors
D.D. Falconer
W.R. LaLonde
S.A. Mahmoud
L.R. Morris
A.U.H. Sheikh
E.L. Sigurdson

Assistant Professors
H.M. Hafez
J.R. Pugh
I. Reichstein
K.C. Toth

Lecturer
J.C. Bryant

Adjunct Professors
J. de Mercado
C. Kropp
C.D. Stothart

Sessional Lecturers
S. Aidarous
H. El-Zorkany
J.P. Johnston
C. Laferriere
J. Robinson

Courses Offered

Engineering 94.165

Computers in Engineering

The architecture and operation of a simple digital computer. Representation of numbers and operation codes, and an introduction to assembly-level programming. Structures programming in FORTRAN and PASCAL, within a disciplined approach to typical engineering problems (iterative solutions, sorting, integration, simulation, etc).

Texts: Meissner and Organick, *FORTRAN 77*; Grogono, *Programming in PASCAL*.

Lectures and tutorials three hours a week, workshop one hour a week.

C.M. Woodside

Engineering 94.202★

Advanced Programming Techniques

A course designed to provide in-depth experience in the design and construction of computer programs involving data structures. The language of instruction is PASCAL. The data structures, including stacks, queues, lists, trees and records, are presented from the viewpoint of the advanced programming concept known as a data type.

Prerequisite: Engineering 94.165 or Computer Science 95.106★.

Second term; Lectures three hours a week, problem analysis two hours a week.

W.R. LaLonde

Engineering 94.261★

Electrical Energy Conversion

Fundamentals of energy: electrical and magnetic energy, electromagnetic induction and forces. Synchronous machines: single and three phase AC generation and transmission. Power transformers: ideal and practical. DC motors: equations, equivalent circuits, operating characteristics, starting and speed control. AC induction motors: torque-speed characteristic, equivalent circuit, single phase motors. Applications of power semiconductor devices: rectification and control.

Prerequisite: Engineering 97.251★.

Text: Elgerd, *Basic Electric Power Engineering*.

Second term: Lectures three hours a week, laboratory and problem analysis three hours a week.

D.C. Coll

Engineering 94.265★

Computer Methods in Engineering

Methods for problem solving and data analysis using FORTRAN 77. Practical programming including the use of library software. Topics in numerical analysis that arise frequently in engineering problems such as: curve fitting to experimental data, integration of differential equations of engineering systems, formulation and solution of optimization problems — application to modelling of engineering systems. Applications of probability and statistics including: common distributions of random data, acceptance sampling, confidence intervals, and concepts of reliability.

Prerequisites: Engineering 94.165 and Mathematics 69.107★ and 69.117★.

One term: Lectures three hours a week. Offered both terms.

D.D. Falconer, B. Pagurek

Engineering 94.302★

Compiler Construction

The structure, organization and design of the phases of a compiler are considered: lexical translators, syntactical translators, scope handlers, type checkers,

code generators and optimizers. Components of a compiler will be implemented for a suitably simple subset of a PASCAL-like language. (Also listed as Computer Science 95.302★.)

Text: Bornat, *Understanding and Writing Compilers*.

Prerequisite: Engineering 94.202★.

First term: Lectures three hours a week.

W.R. LaLonde

Engineering 94.303★

Real-Time Computing Systems

An introduction to the use of minicomputers as real-time, interactive systems, using the PDP-11 as the primary example. Computer organization: structure, representation of instructions, numbers and characters; addressing modes, arithmetic and logical operations. Programming techniques: assembly language coding and interfacing to high level languages. Input/output: via program control, priority and vectored interrupts, and direct memory access. Peripherals: teletype, register, programmable clock, analog/digital converters, interactive graphics processor. Applications to digital signal processing and data communications. (Also listed as Computer Science 95.303★.)

Text: Eckhouse and Morris, *Minicomputer Systems: Organization, Programming and Applications*.

Prerequisite: Engineering 94.165 or Computer Science 95.102★ or previous experience in assembly language.

One term: Lectures two hours a week, laboratory two hours a week. Limited enrolment. Offered both terms.

E.L. Sigurdson

Engineering 94.304★

File Structures and Data Bases

Introduction and definitions of data base systems. File system organizations: sequential, indexed-sequential, direct access and multiring files, hybrid organization. Hardware and its parameters: mechanical storage, magnetic tapes, rotating magnetic storage and large capacity storage devices. Physical implementations: hierarchical and network structures, storage allocation. System evaluation: estimates of system usage, storage requirements and cost-benefit comparison. (Also listed as Computer Science 95.304★.)

Prerequisite: Engineering 94.202★ or 94.303★ (may be taken concurrently) or Computer Science 95.203★.

References: Knuth, *The Art of Computer Programming, Volume III: Searching and Sorting*; The Codasyl Report.

Second term: Lectures three hours a week.

S.A. Mahmoud

Engineering 94.310★

Systems Analysis

Introduction to the concepts and techniques of problem definition and analysis. Various approaches to system identification, specification and presentation are discussed. Students work in teams to test their analysis skills on case studies of information systems. Systems analysis tools: decision tables, flow charts, Gantt charts, activity networks, costing. Data and file description: forms-oriented techniques, languages.

Document description. Phases in a project: feasibility study, input/output analysis and design, document and file design, system design implementation and project control. The course emphasizes applications in computer-based information systems, but the techniques used are of wider applicability. (Also listed as Computer Science 95.310★.)

Reference: Burch and Strater, *Information Systems: Theory and Practice*.

Prerequisite: A full First-year credit in Computer Science.

First term: Lectures three hours a week.

J.S. Riordon

Engineering 94.320★

Industrial Engineering

This course introduces the fundamentals underlying rational decision-making in large engineering systems. Concept and scope of industrial engineering methods. Static optimization: steepest descent and quadratic convergence strategies: linear programming: the simplex method, computational aspects, duality. Network analysis; finite graphs, critical path scheduling. Applications are emphasized.

Prerequisite: Engineering 94.265★.

Reference: Daellenbach and George, *Introduction to Operations Research Techniques*.

Second term: Lectures three hours a week.

B. Pagurek

Engineering 94.356★

Automatic Control Systems I

Review of Laplace transform techniques. Effects of feedback: frequency response, pole-zero positions. Compensation: root locus, Bode plots. State variables: formulation, solution of linear systems, examples of simple second-order non-linear systems. Discrete time systems: z transforms. Signal reconstruction.

Prerequisites: Mathematics 69.201 and Engineering 94.360★.

(Precludes additional credit for Engineering 94.455★.)

Text: Shinnars, *Modern Control System Theory and Application*.

Second term: Lectures and tutorials three hours a week, laboratory three hours alternate weeks.

A.U.H. Sheikh

Engineering 94.360★

Dynamics of Linear Systems

Properties of linear systems. Linear dynamic models of engineering systems. Applications of the Laplace transform. Transfer functions. Block diagrams. Frequency and time response. Effects of feedback on system response. System simulation with analog and digital computers.

First term: Lectures and tutorials three hours a week, laboratory and problem analysis three hours a week.

D.C. Coll

Engineering 94.362★

Electric Power Circuits and Machines

Single phase and three phase A.C. circuits: phasors, voltage, current, and power calculations, flicker, power factor correction, asymmetry, star and delta configurations. Power measurement and rate structures. Single phase transformer: construction, theory of operation and equivalent circuit, OC/SC tests, three phase connections, name plate data and specifications. Three phase induction motor and synchronous motor: construction, theory of operation and equivalent circuits, calculations, starting. Discussion of single phase motors.

Prerequisite: Engineering 94.361★ or concurrent registration.

Text: Printed lecture notes.

Second term: Lectures and tutorials three hours a week, laboratory three hours alternate weeks.

C.F. Kropp

Engineering 94.367★

Switching Circuits

Boolean algebra, gates, combinatorial circuits, canonical forms. Binary arithmetic, two's complement notation, multiplication and division. Arithmetic logic units, programmable logic arrays, read-only memories. Introduction to synchronous sequential circuits, finite state machines, state minimization. MSI registers, counters, finite state machine realization using MSI. Register transfer languages, bit slice processors, introduction to micro-code, parallel bus structures. (Also listed as Computer Science 95.367★.)

Prerequisite: Engineering 97.251★ or Physics 75.236★ or permission of the department.

Text: Roth, *Fundamentals of Logic Design*.

One term: Lectures three hours a week, laboratory three hours alternate weeks. Offered both terms.

B.A. Bowen, E.L. Sigurdson

Engineering 94.401★

Operating Systems

A unifying view of existing operating systems and a basis for the design of future ones. Programming techniques and algorithms for handling concurrency; structure and implementation of operating system kernel routines; performance implication of scheduling and memory management strategies; deadlock problems; special problems, if time permits, covering distributed processing, protection, recovery, integrity and reliability. Assignments involve the use of ADA as a solution description language. (Also listed as Computer Science 95.401★.)

Prerequisite: One of Engineering 94.303★ or Computer Science 95.203★ or equivalent experience.

Text: R.C. Holt et al., *Structured Concurrent Programming with Operating Systems Applications*.

Reference: Wegner, *Programming with ADA: An Introduction by Means of Graduated Example*.

Second term: Lectures three hours a week.

E.L. Sigurdson

Engineering 94.405★

Discrete Simulation and its Applications

Simulation as a problem-solving tool. Simulation modelling perspectives. Probability concepts in simulation. Network modelling, simulation and problem solving using SLAM. Discrete event simulation using SLAM. Analysis of simulation output. Simulation languages. (Also listed as Computer Science 95.405★.) Prerequisite: Fourth-year registration or permission of the department.

Text: Pritsker and Pegden, *Introduction to Simulation and SLAM*.

Second term: Lectures three hours a week, problem analysis one hour a week.

Engineering 94.410★

Structured Programming

This course introduces the student to principles and practices of structured program design and implementation using the PASCAL programming language. By the end of the course the student will be thoroughly familiar with all the major features of PASCAL and with how to use them to design and construct clearly understandable, well-formed programs for a variety of problems of interest in computer system engineering. Precludes additional credit for Engineering 94.202★. Prerequisite: Engineering 94.303★ and 94.461★ (may be taken concurrently).

Not offered 1982-83.

Engineering 94.415★

Engineering Management

An introductory and overview course on modern management concepts; material is presented through lectures, seminars and case studies. Historical review. Basic elements, tasks, functions and activities of the management process including planning, organizing, staffing, directing and controlling. Dilemmas and constraints. Management style. Guest lecturers on collective bargaining, on the psychology of management, etc. On completing the course the student should be able to: read and constructively criticize management literature; discuss "management" with experts in a rational manner; appreciate the management basis of the first engineering work situation.

Prerequisite: Fourth-year registration.

Evening division, First term: Lectures two hours a week, seminars three hours alternate weeks.

C.D. Stothart

Engineering 94.433★

Advanced Real-Time Programming

Principles and practice of concurrent programming for real-time environments. Processes; inter-process communications using procedure-oriented and message-oriented mechanisms; characteristics of the real-time environment; process interaction with hardware using interrupt service routines and device drivers; structural system design for real-time applications; language issues; hardware/software tradeoffs. Empha-

sis is placed on mini-micro applications in areas such as intelligent terminals and computer networks.

Prerequisite: Engineering 94.303★.

First term: Lectures two hours a week, laboratory two hours a week.

R.J.A. Buhr

Engineering 94.445★

Discrete Time Systems

Discrete time signal representation: Time domain, z transforms. Sampling theorem. Stability, controllability, observability. Digital filters: design techniques, quantization effects. Applications in control, communications and signal processing.

Prerequisites: Engineering 94.303★ and 94.356★.

Text: Cadzow, *Discrete Time Systems*.

Second term: Lectures two hours a week, laboratory three hours alternate weeks.

Engineering 94.451★

Communication Systems

Representation of signals; Fourier series; Fourier transforms; Laplace transforms; time and frequency convolution. Amplitude modulation theory, circuits and systems; single sideband; vestigial sideband. Operational mathematics for non-stochastic signals; correlation; energy spectra. Sampling theorem; time division multiplexing; discrete Fourier transforms. Angle modulation; phase and frequency modulation theory, circuits and systems. Television and facsimile waveforms, spectra and modulation methods. Characteristics and uses of classical, transversal and recursive filters. Noise in circuits and systems. Pulse code modulation and delta modulation.

Text: Haykin, *Communication Systems*.

References: Carlson, *Communication Systems*; Lathi, *Communication Systems*.

First term: Lectures three hours a week, laboratory three hours alternate weeks.

D.C. Coll

Engineering 94.457★

Introduction to the Architecture of Computer Systems

This course begins with a comprehensive historical review of computing machines from early history through Pascal and Babbage to present-day architectures with emphasis on the evolution of concepts, the influence of technology and the techniques evolved to increase performance. The second major portion of the course presents a structured view of methodologies as they currently exist (for gate, register and processor design) with particular stress on their limitations. Detailed analysis and design are then undertaken for controllers, processors and memory systems, using existing machines as examples. A range of such component implementations is extended for enhanced performance leading to discussions of super computers. Computer classification schemes are examined. The course concludes with a discussion of systems of computers and related problems. (Also listed as Computer Science 95.457★.)

Prerequisite: Engineering 94.367★ or 94.466★.

Text: Hayes, *Computer Architecture and Organization*.

Second term: Lectures three hours a week.

B.A. Bowen

Engineering 94.460★

Data Communications

Probability and random variables. Digital modulation and transmission: modems, signal-to-noise ratio and error rates. Data networks: circuit/message/packet switching. Data codes. Network functions: modulation, multiplexing, concentration, polling. Synchronous and asynchronous transmission. Error detection. Protocols: SNA, HDLC, X.25. Examples of public data networks.

Prerequisites: Engineering 94.303★ and 94.451★.

Text: Doll, *Data Communications*.

Second term: Lectures three hours a week, laboratory three hours alternate weeks.

D.D. Falconer

Engineering 94.461★

Microprocessor Systems

Four main areas are covered: microprocessor chip internal architectures, instruction sets and operation for two selected chips, one high level and one low level; basic microprocessor system architectures in terms of buses, memories and devices; assembly language programming of system functions such as interrupt and device handling; device interfacing techniques (Also listed as Computer Science 95.461★.)

Prerequisite: Engineering 94.367★ or permission of the department.

Texts: Zaks, *Microprocessors*; MCS-80/85 Family User's Manual.

One term: Lectures three hours a week, laboratory three hours alternate weeks. Offered both terms.

R.J.A. Buhr, J.P. Knight

Engineering 94.480★

Introduction to Software Engineering

Software engineering may be defined as the specification, design and production of software in an environment characterized by the need for a project team, by the necessity of satisfying client requirements and by the imposition of time, budget and technology constraints. This course introduces students to problems and methods of producing quality software in such an environment. The course is divided into five main sections: introduction; review of structured programming; specification and design; production; and advanced issues. Topics covered include: program design by stepwise refinement and divide-and-conquer; design and specification of systems of sequential and concurrent programs using "blueprints," tabular methods and advanced language concepts; reliability; designing for implementation and maintenance; organization and control of development process and the project team; automated aids to development; an introduction to packaged design methodologies; hardware and software technology constraints and tradeoffs; a look at the future. Advanced issues are illustrated using

ADA. A knowledge of PASCAL is assumed. (Also listed as Computer Science 95.480★.)

Prerequisite: Engineering 94.202★ or 94.303★.

Reference: Pyle, *The ADA Programming Language*.

First term: Lectures three hours a week.

R.J.A. Buhr

Engineering 94.481★

Software Engineering Project

Students participate in a team project to develop a small piece of stand-alone software in an organized and structured fashion. Non-numeric applications are emphasized. All phases of the project are considered equally important: specification, design, implementation, testing and documentation. (Also listed as Computer Science 95.481★.)

Prerequisite: Engineering 94.480★ or concurrent registration.

Second term: Tutorial three hours a week.

E.L. Sigurdson

Engineering 94.485★

Computer Systems Design

This course concentrates on developing professional level design expertise by bringing together in a design-oriented context the various separate threads of software engineering, microprocessor systems, operating systems, and special-purpose chip design. It addresses the totality of activities required to convert requirements specifications into a successful computer system involving components of both software and hardware. Topics covered include design and specification methodologies, requirements of the development environment, make/buy trade-offs, hardware/software trade-offs, state-of-the-art approaches to chips, boards, devices, languages, compilers, operating systems and development environments. Examples will be drawn from the practical experience of members of the department in such areas as intelligent terminals, computer networks, office automation systems, signal processing systems.

Prerequisite: Engineering 94.461★, 94.480★ and 97.476 (concurrent).

Not offered 1982-83.

Engineering 94.497 or 94.498

Engineering Project

As part of the Fourth-year program, each student is required to select and complete a major project in engineering analysis, design, development or research. The objective is to provide an opportunity to develop initiative, self reliance, creative ability, and engineering judgment. The results must be submitted in a comprehensive report with appropriate drawings, charts, bibliography, etc. Each student is required to submit his or her engineering project proposal to the Chairman of the Department of Systems and Computer Engineering on or before the last day of classes in September.

Note:

Students in the Computer Systems Engineering program or stream should register in Engineering 94.498; in the General stream with supervision in the Department of Systems and Computer Engineering, in Engineering 94.497; in the Electronics stream, in Engineering 97.498; in the General stream with supervision in the Department of Electronics, in Engineering 97.497.

Officers of the School

Director

M.R. Coote

Director, Architectural Research Group

M.R. Coote

Professors

M.R. Coote

S.G. Haider

D. Moizer

R.E. Osler

H. Sharon

J.W. Strutt

Associate Professors

C.T. Aasen

K.S. Andonian

R.G. Brand

J. Flanders

E. Kayari

S. Loten

G.D. Milne

G.F. Sutton

D. Westwood

Assistant Professors

F. Carter

T. Dubicanac

N. Griffiths

R. Kuris

M. Thom

Associated Members of the Faculty

C.C. Gordon (*Sociology*)

P. Sharp (*Industrial Design*)

Visiting Assistant Professors

D. Hoffman

J. Maruszczak

Adjunct Professor

J. Leaning

Sessional Lecturers

G. Bean

R. Botros

I. Clapperton

J.-M. Comeau

W. Dawson

R. Froom

R. Gardner

B. Gough

G. Handegord

B. Humphreys

A. Leaning

P. Mill

A. Rankin

J. Wheeler

Photographic Supervisor/Instructor

H. Schade

Bachelor of Architecture Degree Program

The Bachelor of Architecture degree is awarded on the successful completion of a five-year program of studies. The curriculum at Carleton is expected to provide the student with the theoretical, technical and formal knowledge and skill necessary for creative, responsible and significant intervention in the built environment. The program has two components: a core, which is mandatory and provides the essential knowledge and experience, and an elective program in the upper years, which allows students to develop their own areas of architectural interest.

The program is accepted by the Ontario Association of Architects as satisfying the academic requirements for registration to practise. Information concerning mandatory work experience and other requirements for registration may be obtained from the Ontario Association of Architects.

The degree is recognized by the Association of Architects in every province, the National Certification Board, the Royal Architectural Institute of Canada, the Royal Institute of British Architects, and the Commonwealth Association of Architects.

The resources of the Ottawa area, including those of Carleton University, are unique in their concentration of specialized personnel, laboratories, libraries and other facilities. They provide the opportunity and capability for a wide range of multidisciplinary academic and research programs in such fields of architecture as housing, urban environmental studies and industrialized building.

The Organization of the School

Four divisional committees have been established, each responsible for areas of study related to the curriculum of architecture.

The divisions are responsible for integrating the content of their area with that of the other divisions.

The interdisciplinary nature of certain subject areas will be of interest to students outside the School of Architecture. The involvement of faculty and students from other disciplines in these courses is actively encouraged. At the same time, architecture students are encouraged to take courses in other disciplines across campus as part of their educational program.

A Core Program Committee is responsible for the design studio courses and for co-ordination of core courses within the overall program. Core courses are the non-elective courses.

■ **Division A**

History and Theory
Human Sciences
Environmental Sciences

■ **Division B**

Structures
Environmental Controls
Materials and Methods of Construction
Design Economics

■ **Division C**

General Planning
Policy Planning and Community Development
Management and Development
Professional Practice

■ **Division D**

Computations
Design Methodology
Design Education
Communications

Academic Clubs and Societies

SAAS, School of Architecture Association of Students, organizes special events several times a year, as well as being a focus for student discussion.

Architecture Forum: The School of Architecture Association of Students plans and organizes the Forum Lecture series. International speakers discuss contemporary issues in architecture on Wednesday evenings at the school.

Regulations

The following regulations apply to all students enrolled in the school. Students are urged to seek the advice of their advisers on all questions about the regulations, and in particular before taking any action affecting promotion and probation, withdrawal, transfer of credit, appeals and review of grades.

Student Responsibility

The student is responsible for knowing the regulations of the School of Architecture and for complying with them. Any exceptions to the regulations must be approved in writing by the School of Architecture Committee on Standing, Promotion and Awards. Routine approval of a records form (for example, a registration contract or course change form) does not constitute approval of an exception.

Timetables

All courses in the School of Architecture are offered in the Day division, and are scheduled in the timetables of the University.

Counselling and Program Approval

Each student will be assigned a full-time faculty member adviser who will enter into discussions with him or her regarding educational objectives, and assist with the choice of electives. Advisers may be changed with the consent of the Director. The adviser will be responsible for approving the program and course changes of the assigned individual students.

Requests and Appeals

The School of Architecture Committee on Standing, Promotion and Awards is responsible to the Faculty Board for considering students' requests for special consideration regarding the regulations. Appeals must be made in writing to the Chairman of that committee.

Admission and Readmission Requirements

First Year

To be eligible for admission to the First year of the program of studies leading to the Bachelor of Architecture degree, the applicant must have passed the Qualifying University year examinations at Carleton University in five courses with a minimum grade-point average of 4.0 and a grade of C- or better in mathematics and in physics; or must present the Ontario Secondary School Honour Graduation Diploma with a minimum 60% average and including functions, calculus and physics.

Refer to the section on Admissions in the general regulations of the calendar for additional admissions information (pp. 31-37).

Selective Admission

It should be noted that the number of student spaces in the school is limited. Because of this it may not be possible to grant admission to all applicants who meet the foregoing requirements. Admission will therefore be on a selective basis with preference given to those candidates who show the highest promise of success in the program through a portfolio of work and academic grades. Members of the Admissions Committee of the School of Architecture are available by appointment during the academic year to answer enquiries regarding the school's program.

Advanced Standing

Applications for admission with advanced standing to the Second or subsequent years of the program leading to the Bachelor of Architecture degree will be evaluated on an individual basis. Advanced standing for

academic subjects completed at another university or college may be accepted if the subject is recognized as the equivalent of a corresponding subject offered at Carleton, or for a subject particularly appropriate to a degree in architecture. Advanced standing may be recognized at any time in the program.

Readmission

Students who have been absent from the University for two consecutive Winter sessions and the intervening Summer session (except students holding a Letter of Permission from the Carleton School of Architecture) are required to apply for readmission before registration.

Applications for readmission (obtainable from the Admissions Office) must be filed before July 1 for the Winter session and before April 1 for the Summer session.

Proficiency in English

Since the instructional language of the University is English, applicants must be able to understand and be understood in English, both written and oral. Applicants whose mother tongue is other than English must clearly exhibit this ability.

Proficiency in Mathematics

At registration students will be required to take a placement test administered by the Department of Mathematics and Statistics. Those who fail will be required to take an appropriate remedial course. This course will not be credited towards the student's architecture program requirements, but successful completion will be required before enrolment in Architecture 79.101★ is permitted.

Registration

Registration

Students are to complete their course registration by the registration periods shown for the session or term in the schedule for the Academic Year on pp. 11-13.

Late Registration

Registration after the registration period incurs a late registration fee. Registration is not permitted after the late registration period.

Course Credit Value

Credit values are indicated against course descriptions. Courses marked ★ are half credit courses, indicated 0.5 on record documents.

Course Load

The program in the School of Architecture is based on a course load of six full-credit equivalents for five years.

First and Second Years

During the first two years of the program in architecture, because of the limited number of student spaces, all students (with the exception of those students admitted with advanced standing or those who are repeating course work) will be required to undertake the full course load as set out in the course outlines on p. 338 or as modified by these regulations.

Student Records

Incorrect address information will delay the receipt of awards, examination results and changes in academic status. Students must notify the school and the Registrar's office immediately of any change in permanent address.

Promotion and Continuation

Standing in Courses

Standing in courses will be determined by the School of Architecture. Standing in courses will be shown by alphabetical grades. The system of grades used, with corresponding grade points, is as follows. Supplemental examinations for courses are graded by the same scale, with the exception of design studio courses, where the maximum grade for supplemental examinations is C-.

A+	12	B+	9
A	11	B	8
A-	10	B-	7
C+	6	D+	3
C	5	D	2
C-	4	D-	1

The following percentage equivalents are published solely to assist other institutions in interpreting letter grades. Students are advised that these equivalents have no internal application.

A+	90-100	B+	77-79
A	85-89	B	73-76
A-	80-84	B-	70-72
C+	67-69	D+	57-59
C	63-66	D	53-56
C-	60-62	D-	50-52

Other notations are as follows:

Aeg

Pass standing granted under special circumstances. Aegrotat standing is granted only by a faculty committee, in response to a student's application. (See Deferred Final Examinations, p. 46.)

Aud

Indicates course is not being taken for academic credit.

F

Failure. No academic credit.

FNS

Failure without access to supplementals because of incomplete term work or unacceptably low standing. No academic credit.

Abs

Absent from final examination. No supplementals. No academic credit. *Abs* is usually equated to failure.

Wdn

Withdrawn in good standing. No academic credit.

Def

Indicates deferral of final grade has been approved by a faculty committee. (See Deferred Final Examinations, p. 46.)

IP

In Progress.

Ch

Credit granted under Challenge for Credit policy.

Passing Grades

The passing letter grade in design studio and in research and development projects is C-. The passing letter grade in other courses is D-.

Computation of Averages

The twelve-grade-point system is set out above. The grade points earned in any specific course are determined by multiplying the grade points corresponding to the grade by the credit value of the course. Thus an A+ in a half-credit course will earn the student six grade points, while A+ in a two-credit course would be worth twenty-four grade points.

Grade-point averages are calculated by dividing the total accumulated grade points by the total credits.

Promotion

Students who achieve a passing grade in all courses in the program of study for their year and have a grade-point average of 3.5, without design studio courses, will be promoted to the next year of the program. In arriving at the grade-point average only the grades of courses required to make up a full program in that year will be averaged.

Grades in design studio courses will not be averaged to arrive at a passing grade for the year.

Design Studio Course Sequence

In Third and Fourth years, where design studio courses are divided within a year, the First-term course must be taken before the Second-term course.

Deficiencies and Probation

Students who are not on probation but have up to 1.0 credit deficiency may proceed to the next higher year, except to Fifth year. Students with more than 1.0 credit deficiency are not permitted to register in core courses of the higher year.

Students without clear standing will not be permitted to register in Fifth-year core courses.

Core course deficiencies may only be carried into the next higher year. If they are not cleared, students may not take core courses in the succeeding year.

A student who has failed a course or courses valued at more than 1.0 credit or whose grade-point average without design studio courses is less than 3.5 (after supplemental examinations) will be considered to have failed the year and if given permission to return, will return as a student on probation. Students on probation must repeat the failed courses and other courses in which their grade is less than C- and achieve a grade of C- or better in each. Electives with a grade less than C- may be replaced with other approved electives.

A student on probation may not register for core courses in any higher year.

A student may not be on probation more than once during the course of studies. A student who would be on probation for a second time will not be eligible to register in the architecture program.

Examinations

General regulations on examinations are on pp. 46-47.

Supplemental Examination Privileges

A student may not write a supplemental in a course graded *FNS* or *Abs*. If a supplemental examination is failed, the student must repeat the course before writing another examination in it. Except in design studio, supplemental examinations must be written at the next supplemental examination period.

Supplemental examinations in design studio for both terms will be held in May, after completion of the academic year. The examinations are in the form of projects set for each level of the design program, and will extend over a period of three weeks.

Application to write supplemental examinations must be made at the appropriate Faculty Registrar's Office. Application must be made by the designated date (see Examination Charges, p. 49), except in the case of application for supplementals in design studio for the

Second term. In this case, application must be made prior to the date in May set for the beginning of the supplemental.

Grade-Raising Examinations

Students may on application write grade-raising examinations in courses already passed, with the exception of design studio courses.

The grade awarded subsequent to a grade-raising examination supersedes the original final grade. A grade-raising examination in a course can be written only once and at the next scheduled examination period.

Review of Grades

Students are entitled to a review of final grade. Those wishing to receive such a review should enquire at the appropriate Faculty Registrar's Office, after which they may wish to make a formal application for this review. Applications must be filed with the appropriate Faculty Registrar's Office within fourteen days of the official release of grades for the term.

Requests for review are dealt with by the Director in consultation with the appropriate program or divisional chairman.

Evaluation

To gain standing in a course, a student must meet the course requirements for attendance, term work and examinations.

Instructors will inform their classes in writing before the last date for course change of the elements that will contribute to the final grade and their weighting, including attendance, class participation, essays, tests and final examinations. Also stated will be the availability of supplemental and grade-raising examinations; and the method of computing a grade revised by these examinations.

Portfolio Reviews

At the end of the Second and Fourth years of the program, each student will present to a Committee of Examiners, a portfolio of work in design studio for the preceding two years. This committee, in consultation with the student's tutor, will review the work. For the design studio work completed in the year or term prior to the review, the committee will decide whether the student passes, fails or fails without being granted a supplemental. The final letter grade, within the constraints of the decision of the Committee of Examiners, will be given by the tutors in the design studio of the year under review.

Graduation

Application to Graduate

Students expecting to graduate in the Spring must make application on the form available in the Faculty Registrar's Office by February 1, those expecting to graduate in the Fall by September 1, and those expecting to graduate in February, by December 1.

Degrees with Distinction

Upon recommendation of the School of Architecture, the notation "with High Distinction" may be made on the academic records of a candidate for the degree of Bachelor of Architecture. To receive this recommendation, the candidate is expected to obtain a grade-point average of at least 10.0 in the course requirements of final year. In addition, the student must obtain a grade-point average of at least 7.8 in the design studio courses of the First to Fourth years inclusive, and at least 7.8 in the other course requirements of the First to Fourth years inclusive.

Upon recommendation of the School of Architecture, the notation "with Distinction" may be made on the academic records of a candidate for the degree of Bachelor of Architecture. To receive this recommendation, the candidate is expected to obtain a grade-point average of at least 8.0 in the course requirements of final year. In addition, the student must obtain a grade-point average of at least 6.6 in the design studio courses of the First to Fourth years inclusive, and at least 6.6 in the other course requirements of the First to Fourth years inclusive.

For transfer students, degrees with Distinction and High Distinction will be awarded at the discretion of the Faculty Board.

Scholarship and Awards

The faculty of the school will recommend students to the Senate for scholarships and awards available to the school. For this purpose an overall grade-point average including the design studio courses will be calculated. The design studio grade, the course grade-point average or the overall grade-point average will be used as is most appropriate for the nature of the award.

Students admitted with advanced standing whose grade-point average may not represent a true measure of their worth will be given individual consideration.

See Awards and Financial Assistance, p. 449.

Course Requirements

Core Courses

(a) Design Studios

The heart of the architectural program is the design studio. Design projects are the primary learning vehicle, supported by lectures, seminars and tutorials.

Design studio courses are for 2.5 credits per year in the first two years and for 1.5 credits per term in the Third and Fourth years. In Fifth year, design studio or research and development project is for 2.5 credits per term. Design studio courses are taught by lectures, seminars and individual tutorial instruction. The design studio courses tend to require more individual work than might be indicated by the scheduled contact time.

(b) Core Courses

Core courses in the First and Second years are given to provide the required foundation for studies in Architecture. Core courses in the First and Second years are as designated in the course charts p. 338 and in the courses offered.

(c) Theories Electives

This is a selection of courses that broadly sets out a theoretical context for environmental design. Theories electives are selected from the following courses:

Architecture

- 76.307★ Theories of Environmental Design 3A
- 76.308★ Theories of Environmental Design 3B
- 76.408★ Theories of Environmental Design 4A
- 76.208★ Theories of Urban Design 1
- 76.209★ Theories of Urban Design 2
- 76.205★ Theories of Landscape Design 1
- 76.210★ Theories of Landscape Design 2
- 76.302★

Art History

- 11.302★ Canadian Architecture
- 11.305★ American Architecture
- 11.350★ British Art and Architecture

and such other courses in the field as become available and are approved by the Faculty Board. A list of available approved courses will be published at registration.

Three of these courses must be passed before the end of Fourth year. Students are free to choose in what terms they take the courses. Additional theories electives may be taken as approved electives.

Note:

Prerequisites to core courses may not be waived except on appeal to the Committee on Standing, Promotion and Awards and with the permission of the Faculty Board.

Elective Courses

(a) Workshop Courses

Workshop courses are scheduled for one term at six hours a week of seminar and/or individual work including tutoring and receive a half credit.

(b) Approved Electives

A list of approved elective courses will be published at registration. All but two of the elective half courses must be from the approved list. The other two half courses are open but must be recognized for degree credit, and must not repeat the content of core courses.

Course Program

The program of study is outlined in the following charts and detailed course descriptions appear on pp. 339-347, and listed under courses offered.

All programs are subject to change according to the final availability of resources at the time of registration.

Fourth-Year Directed Study Abroad

When circumstances allow, a Study Abroad option is available to students who are enrolled in the First term of the Fourth year of the program. This Study takes place in a location away from Ottawa and usually outside Canada. The location is selected for its architectural and urban relevance to the state of the art, and is carried out under the direction of a faculty member of the school. The Study option is available to students with a grade point average of 6 in Architecture 80.304 and 80.306 and with clear standing to the Fourth year of the program.

Fifth Year

(i) General

Students without clear standing will not be permitted to register in Fifth year core courses.

Before the end of the Fourth year of the program students will enter into discussions with their advisers and will select their Fifth-year courses.

(ii) Research and Development Projects

It is possible to undertake research and development projects over periods of one or two terms. A project may involve the investigation of a building, a subsystem of a building, or research into a topic related to architecture. The project must be clearly related to the courses the student has taken and must provide for an in-depth synthesis of this experience.

Students selecting research and development projects for the First term must prepare a written proposal for submission to a research and development committee two weeks after the last day for handing in term assignments at the end of the Fourth year of the program. Those electing a Second term research and development project must submit a similar proposal to the committee by the last day of Summer session classes.

The student proposal, in order to be considered for approval, must be submitted on forms provided for this purpose and contain the following:

- (a) a statement of purpose, intent and scope (the rationale for the project);
- (b) statement of related academic and work experience;
- (c) the study method (work plan and schedule indicating milestones);
- (d) the proposed tutor's agreement in writing.

The Research and Development Committee will approve or reject the proposals on the basis of the following criteria:

- (a) evidence of a strong academic record over the whole program;
- (b) high standing in course work relevant to the project;
- (c) favourable assessment of the student's capability to carry out the project.

The committee will, before registration, advise the student of its decision and provide counselling for students whose projects are not accepted.

A student whose proposal is rejected may, at the discretion of the committee, submit a revised proposal to the committee in time for re-evaluation before the last day for course changes in the appropriate term. If the decision to reject the proposal stands, the student must then change the course registration to the design studio option or submit a new or revised proposal for a later term. The committee's decision at this point is final.

A project graded D+, D, D-, or F is a failure and the course may be repeated. A student who has received a grade of *FNS* is not eligible to re-register in the research and development project option. A student who undertakes a two-term project and who receives a grade of D+ or lower on the first term's work may not continue with the research and development project in the following term.

Independent Study

A student enrolled in the Bachelor of Architecture program may propose, and may be permitted to undertake an independent study in lieu of approved elective or workshop elective courses for up to one credit in each of Third and Fourth years.

The purpose of this provision is to allow more flexibility for students to pursue a line of investigation in their own way, free of normal constraints of timetable and university locale. The independent study at the undergraduate level is to make no demands on University faculty other than those required for approval and evaluation.

In certain cases, with the approval of the department in which they are registered, graduate students enrolled in another program at the University may be permitted to enrol in a Fourth-year level independent

study under the direction of a member of the faculty of the school. The procedures and conditions will be detailed and approved jointly by the student, the department and the adviser in the school.

Serious scholarship and research are expected and proper documentation will be required. In the case of students in architecture, registration for the study will be subject to the following conditions:

1. The student's standing must be clear with no deficiencies in core courses.
2. The student will register for an independent study in the term or session during which the work is to be completed. The student must submit the proposal in writing to the adviser at the time of registration, outlining the objectives and direction of the study, the time and locale, resources available, submission date and other pertinent information. The subject area of the study should be identified with respect to the interests of the organizational divisions of the School of Architecture.
3. The student must have obtained the prior approval of the appropriate Divisional Chairman and prior agreement of a member of the teaching staff in that division to act as assessor for the study. That staff member will then be responsible for approval and evaluation. The Divisional Committee Chairman's written recommendations, comments, and the credit value to be given for the study must accompany the proposal when presented to the adviser for course approval. The student's adviser will deliver the completed and approved proposal to the Records Office of the School of Architecture to be filed with the student's course records.

General Information

Materials, Supplies and Field Trips

The program in architecture, particularly the design studio courses, requires that the student produce large quantities of drawings and models, as well as ozalid prints, photostats, use of other photographic media, reproductions of drawings, reports, etc., all of which can be costly. While the instructors are careful to keep the required presentations to a minimum, the students are free to, and do, experiment with many techniques and media. The school provides some of this material but the students are expected to absorb the larger portion of the cost and should budget accordingly.

Equipment for drawing, photography, etc., should be regarded as an investment, because good tools are essential and last a long time if properly cared for. An equipment list is provided as a guide to the entering student. A good quality 35mm. camera is a very useful but not mandatory item on the list and most students find they use it to such an extent that they wish to purchase one during the first year or two of the program.

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Field trips to other cities are a part of the program. The school usually absorbs part of the cost of transportation but students are expected to meet most other expenses while away.

Experience indicates that the student should budget about \$1,000 for materials, equipment and field trips per year, not including a camera.

First Year

Term 1

76.120★ Introduction to Architectural History
77.111★ Structures 1
77.130★ Building Construction 1

Term 2

76.121★ Introduction to Western Architecture
77.101★ Environmental Controls 1
77.112★ Structures 2
79.101★ Mathematics in Architecture 1

80.102 Design Studio 1

Note:

Architecture 80.102 has a course value of 2.5 credits.

Second Year

Term 1

76.203★ The Fundamentals of Architectural Vocabulary
77.200★ Environmental Controls 2
77.211★ Structures 3

Term 2

76.204★ The Physical Morphology of the City
77.230★ Building Construction 2
79.211★ Introduction to Algorithmic Problem Solving
Elective★

80.202 Design Studio 2

Notes:

Architecture 80.202 has a course value of 2.5 credits.

It is recommended that the Second-year elective be chosen from courses offered by other departments of the University. However, a list of courses offered by the school and designated as suitable for this purpose will also be available.

Third Year

Term 1

1 Theories Elective★
1 Approved Elective★
1 Workshop Elective★

Term 2

1 Theories Elective★
1 Approved Elective★
1 Workshop Elective★

80.304 Design Studio 3A

80.306 Design Studio 3B

Note:

Architecture 80.304 and 80.306 each have a course value of 1.5 credits.

Fourth Year

Term 1

- 1 Theories Elective★
- 1 Approved Elective★
- 1 Workshop Elective★

Term 2

- 2 Approved Electives★★
- 1 Workshop Elective★

80.403 Design Studio 4A

80.405 Design Studio 4B

Notes:
Architecture 80.403 and 80.405 each have a course value of 1.5 credits.

Students who take the Directed Study Abroad option in Architecture 80.403 will take a special section in 80.405.

Fifth Year

Term 1

76.451★ Contemporary Issues

- 80.457 Design Studio 5A or
- 80.460 Research and Development Project 5.1 or
- 80.461 Research and Development Project 5.2

Term 2

78.320★ Professional Practice

- 80.458 Design Studio 5B or
- 80.460 Research and Development Project 5.1 or
- 80.461 Research and Development Project 5.2

Notes:
Architecture 80.457, 80.458, 80.460 and 80.461 each have a course value of 2.5 credits.

Courses Offered

Division A

Architecture 76.120★ Core Course Introduction to Architectural History

An introductory survey of major world traditions in architecture, concentrating on the organizing principles and formal properties of buildings. The course covers ancient and medieval architecture in Europe, Asia and America.

Day division, First term: Lectures three hours a week.

Architecture 76.121★ Core Course Introduction to Western Architecture

A continuation of Architecture 76.120★ with the same emphasis, examining European and American architecture from renaissance to modern.

Day division, Second term: Lectures three hours a week.

Architecture 76.203★ Core Course

The Fundamentals of Architectural Vocabulary

An exploration of architecture as the embodiment of ideas, language and meaning. Ideas are considered in relation to broad conceptual frameworks contrasting various theoretical approaches. Language is examined in terms of the elements, relationships, and ordering ideas within architecture. Consideration of the process of experiencing architecture and the levels of meaning in architecture complete the content undertaken in this course.

Day division, First term: Lectures three hours a week.

Architecture 76.204★ Core Course

The Physical Morphology of the City

An historical and theoretical description and comparative analysis of the physical morphology of cities. The primary structural, spatial and formal organization and elements which characterize the morphology of cities are studied in terms of their historical and

contemporary significance for architecture and urban design.

Day division, Second Term: Lectures three hours a week.

Architecture 76.205★ Theories Elective

Theories of Landscape Design I

An introductory course intended to bring to the student an awareness of landscape architecture as the total organization of outdoor space. A consideration of cultural, economic and political factors provides a frame for reference for the understanding of spatial organization in cities, towns and other areas of human settlement.

Day division, First term: Lectures three hours a week.

Architecture 76.206★ Elective Course

Introduction to Industrial Design

Offered in the School of Industrial Design as Industrial Design 85.100★.

Architecture 76.207★ Elective Course

Theories of Visual Design 1

An introduction to the field of visual design including an historical overview of the development of design theories, principles, and methods. See also related workshop, Architecture 79.340★.

Day division, First or Second term: Lectures three hours a week.

Architecture 76.208★ Theories Elective

Theories of Urban Design 1

History of the city as a physical artifact. Study of the physical growth of cities as an expression of developing social and cultural values and structures, as well as with reference to aesthetic ideals. See also related workshop, Architecture 76.328★.

Day division, First or Second term: Lectures three hours a week.

Architecture 76.209★ Theories Elective

Theories of Urban Design 2

This course examines current design attitudes affecting the physical morphology of cities. These attitudes will be studied from the standpoint of the relationship between practical and functional aspects on the one hand, and man's symbolic and psychic perceptions on the other.

Prerequisite: Architecture 76.208★ or permission of the School of Architecture.

Day division, First or Second term: Lectures three hours a week.

Architecture 76.210★ Theories Elective

Theories of Landscape Design 2

This course is an historical consideration of man's relationship with nature and outdoor space as it is manifest in designs on the land — private and public gardens, parks and parkways, urban and regional design. This relationship is described in relation to the cultural context and metaphysical beliefs that have shaped environmental design from the eighteenth

century to the present, emphasizing the origins of contemporary approaches to land.

Prerequisite: Architecture 76.205★ or permission of the School of Architecture.

Day division, First or Second term: Lectures three hours a week.

Architecture 76.211★ Elective Course

Industrial Design Analysis

Offered in the School of Industrial Design as Industrial Design 85.101★.

Architecture 76.212★ Elective Course

Theories of Visual Design 2

An analytical study of design principles including arrangement, composition, form, order, rhythm, colour and texture.

Prerequisite: Architecture 76.207★ or permission of the School of Architecture.

Day division, First or Second term: Lectures three hours a week.

Architecture 76.302★ Theories Elective

Course title and content to be announced. For details, consult the School of Architecture.

Architecture 76.305★ Elective Course

Workshop: Archeology of Modern Architecture

Buildings designed by leading twentieth-century architects are studied with a particular emphasis on physical form organization, space and detailing through graphic studies and models. Attributes of form are related to design issues and philosophies as presented in contemporary writings.

Day division, First or Second term: Six hours a week.

Architecture 76.307★ Theories Elective

Theories of Environmental Design 3A

Day division, First term: Lectures three hours a week.

Architecture 76.308★ Theories Elective

Theories of Environmental Design 3B

Day division, Second term: Lectures three hours a week.

Architecture 76.324★ Elective Course

Social Environment Systems

An examination of relationships between man and the environment he has built. The course considers this "built environment" as the product of social processes and as an influence on these processes at varying levels of organization. Lectures by the members of the School of Architecture, and the Department of Sociology and other departments are supplemented by guest lecturers and readings.

Day division, First or Second term: Lectures three hours a week.

Architecture 76.325★ Elective Course

Workshop: Man-Environment Interface I

Seminars, individual and interdisciplinary team projects developing and contributing knowledge and

expertise in the area of relationships between man and the environment he has created. (Architecture 76.324★ and 76.325★ are listed in the Department of Sociology and Anthropology as the two-term course Sociology 53.335.)

Day division, First and/or Second term: Six hours a week.

Offered concurrently with Architecture 76.425★ and 76.426★.

Architecture 76.328★ Elective Course

Workshop: The Architecture of Urban Space

This workshop undertakes design explorations which are directed towards the search for aesthetic form and meaning in urban space, with particular application to the Canadian context. It is project-oriented and refers to precedents as established in Architecture 76.208★. Prerequisite: Architecture 76.208★ or permission of the School of Architecture.

Day division, First or Second term: Six hours a week.

Architecture 76.401★ Elective Course

Colloquium

Intuition and Creativity: an exploration into the nature and essence of the creative self.

Day division, First or Second term: Three hours a week.

Architecture 76.408★ Theories Elective

Theories of Environmental Design 4A

Day division, First term: Lectures three hours a week.

Architecture 76.423★ Elective Course

The Human Development/Built Environment Interface 1

Views of man as a developing being interacting with his physical and institutional environment: critical facilities, encounters and change-strategies in this process of interaction; the content of human development; the concept of developmental sequences, stages and life cycles; total environments and world views. Emphasis on changing individuals, physical and institutional environments.

Prerequisite: Architecture 76.324★ or permission of the School of Architecture.

Day division, First or Second term: Lectures three hours, seminars three hours a week.

Architecture 76.424★ Elective Course

The Human Development/Built Environment Interface 2

Applies the developmental insights acquired through Architecture 76.423★ to particular problem areas such as: education and learning environments; leisure and leisure environments; housing and the family. Explores how, why, when and where the built environments facilitate or retard developmental processes.

Prerequisite: Architecture 76.423★ or permission of the School of Architecture.

Day division, First or Second term: Lectures three hours a week.

Architecture 76.425★ Elective Course

Workshop: Man-Environment Interface 2

Examination of developing human beings and the built environment, identification of problem areas and the generation of new physical and human patterns which adjust to changing environmental conditions while enhancing human development.

Prerequisite: Architecture 76.424★ or permission of the School of Architecture.

Day division, First and/or Second term: Six hours a week.

Offered concurrently with Architecture 76.325★ and 76.426★.

Architecture 76.426★ Elective Course

Workshop: Man-Environment Interface 3

Using knowledge, criteria and research methods from the human sciences, students in this workshop study and make proposals for changing environmental designs or for creating new designs. The emphasis is on complex environments with in-depth explorations of part or all of the design process.

Prerequisite: Architecture 76.425★ or permission of the School of Architecture.

Day division, First or Second term: Six hours a week.

Offered concurrently with Architecture 76.325★ and 76.425★.

Architecture 76.451★ Core Course

Contemporary Issues in Architecture

Debate and discussion of major issues pertaining to architecture and society today. Each student is expected to take, defend and extend a position reflecting personal values and beliefs that have developed over the course of study in architecture.

Prerequisite: Clear standing to Fifth year.

Day division, First term: Lectures and seminars three hours a week.

Architecture 76.488 Elective Course

Independent Study

■ **Division B**

Architecture 77.101★ Core Course

Environmental Controls 1

Design for environmental control; comfort parameters; enclosure performance.

Day division, Second term: Lectures three hours a week.

Architecture 77.111★ Core Course

Structures 1

Statics and strength of materials. Mechanical properties of structural materials. Application of statics and strength of materials to problems of structural elements in the context of total building structures.

Day division, First term: Lectures three hours a week, laboratory two hours a week.

Architecture 77.112★ Core Course
Structures 2

An introduction to structural planning, including an historical survey of structural systems and details, and the study of the factors involved in the synthesis of a suitable structural scheme. An introduction to the science and the structural properties of materials.

Day division, Second term: Lectures three hours a week, laboratory two hours a week.

Architecture 77.130★ Core Course
Building Construction 1

A study of design and construction processes. An introduction to drawings and specifications, followed by a detailed study of construction techniques used by the principal building trades to translate the design into a building. Emphasis is placed on the proper selection of sub-systems and on the factors that affect the quality of construction.

Day division, First term: Lectures three hours a week.

Architecture 77.200★ Core Course
Environmental Controls 2

Continuation of Architecture 77.101★ with additional coverage of building servicing and the interaction of environmental conditions with space enclosures. Aspects of the course are extensively reinforced by applications in design projects.

Day division, First term: Lectures three hours a week, problems three hours a week.

Architecture 77.211★ Core Course
Structures 3

Behaviour of structural elements and simple systems under load conditions of increasing severity. Simplified design of structural elements and systems. Comparative estimation of stresses and deformations. Use of structural testing laboratory to demonstrate behaviour path to failure.

Prerequisite: Architecture 77.112★.

Day division, Second term: Lectures three hours a week, laboratory two hours a week.

Architecture 77.230★ Core Course
Building Construction 2

A study of building enclosures for the Canadian climate. A review of the principles of heat transfer, psychrometry and air movement. The techniques used to control the movement of heat, water and air through the enclosure. The application of these techniques to roofs and windows and to wood, concrete, masonry and metal walls.

Day division, Second term: Lectures three hours a week.

Architecture 77.300★ Elective Course
Lighting for Architecture

Specifications for lighting based on visual performance and subjective preference. Appropriate design techniques for daylight and electric light assessed by model and full-scale installations. Topics may include:

derivation of units, scalar and vector luminance, subjective appraisal and preferred lighting configurations, I.E.S. recommendations, working plane and illuminance design, display lighting and exterior lighting. Day division, First or Second term: Lectures three hours a week.

Architecture 77.302★ Elective Course
Acoustics in Architecture

Recapitulation of fundamentals. Sound in enclosures including interior design of auditoria and special applications. Sound reproduction and reinforcement systems. Acoustic privacy and protection, sound control in buildings, materials for noise control, community noise, industrial noise. Acoustic measurements and instrumentation.

Day division, First or Second term: Lectures two hours, laboratory two hours a week.

Architecture 77.303★ Elective Course
Energy and Form

The purpose of the course is to provide the student with a body of knowledge concerning energy as a criterion in decision-making for architectural design. Specifically, the course covers conventional energy resources and the state of the art of alternative energy resource systems with respect to building shape, size, materials, openings, orientation, siting and use.

Day division, First or Second term: Lectures three hours a week.

Architecture 77.304★ Elective Course
Workshop: Energy and Form

Study of the relationship between environmental factors, energy and architectural form. Emphasis is placed on explorations into ways in which buildings and building elements can be planned and designed so as to take advantage of natural cycles in order to minimize the need for supportive energy inputs.

Prerequisite: Architecture 77.303★ or permission of the School of Architecture.

Day division, First or Second term: Six hours a week.

Architecture 77.314★ Elective Course
Structural Analysis

Offered in the Department of Civil Engineering as Engineering 82.420★.

Architecture 77.316★ Elective Course
Design of Structural Steel Components

Offered in the Department of Civil Engineering as Engineering 82.425★.

Architecture 77.320★ Elective Course
Industrialized System Building: Principles, Classification and Selection

A study of the principles of this approach to design and manufacture of buildings. A brief survey of the historical factors forcing changes in the building industries of the world. This is developed by a review of existing systems using the technique of multi-parameter classification and selection by profile matching.

Day division, First or Second term: Lectures three hours a week.

Architecture 77.326★ Elective Course

Workshop: Space Enclosure Systems

The exploration of space enclosure systems for a wide range of environments.

Prerequisite: Architecture 79.320★ or permission of the School of Architecture.

Day division, First or Second term: Six hours a week.

Architecture 77.330★ Elective Course

Performance of Building Materials 1

Study of materials available for building with emphasis on their structure, properties, application and sustained performance over the life of a building.

Day division, First or Second term: Laboratories, lectures, field trips four hours a week.

Architecture 77.333★ Elective Course

Performance of Building Materials 2

A look at how man develops building skills in the use of material and how, with the development of raw materials, technologies and industrial processes, new ways of thinking about materials and methods influence the design process. Investigation is done into many relevant building types to look at how materials and building elements have been used. Field trips are arranged.

Day division, First or Second term: Laboratories, lectures, field trips four hours a week.

Architecture 77.335★ Elective Course

Workshop: Materials Application

Application of building materials, including the forming of building parts and the design of joints for performance and assembly. Practical constructions using new technology are emphasized.

Prerequisite: Architecture 77.330★ or permission of the School of Architecture.

Day division, First or Second term: Six hours a week.

Architecture 77.350★ Elective Course

Design Economics

Principles of building economics. Determinants of building costs and their prediction. Discussions on uncertainty and investment economics. Systems and techniques of creative cost control for buildings during schematic design, design development, construction document preparation and construction. Prime emphasis on the economic evaluation and choice from among alternatives during all phases of design process.

Day division, First or Second term: Three hours a week.

Architecture 77.420★ Elective Course

Structure and Form

The challenge of space enclosure and spanning and its relationship to architectural form in history. Basic modes of force transfer and corresponding elements of structural form. Aggregation of form elements

within the laws of geometry and physical stability. Discussion of physical-structural and form characteristics of a wide variety of structural types like cables, membranes, shells, arches, domes, trusses, slabs, folded planes, beams, frames and grids.

Day division, First or Second term: Lectures three hours a week.

Architecture 77.424★ Elective Course

Structural Planning in Architecture

Structural planning process. Values, contexts, criteria and parameters of structural planning. Role of information and codes. Classification and comparative study of structural systems. Interaction and integration of structures with other building systems. Structural details. Structural planning data and guidelines. Case studies and exercises. (Also listed as Engineering 82.430★.)

Day division, First or Second term: Lectures three hours a week.

Architecture 77.425★ Elective Course

Workshop: Industrialized System Building

The design of building system components, control methods, or philosophies to meet prescribed ranges of conditions.

Prerequisite: Architecture 77.320★ or permission of the School of Architecture.

Day division, First or Second term: Six hours a week.

Architecture 77.426★ Elective Course

Workshop: Structural Planning

Creative synthesis of structural schemes within the total context of building design. Methods of analysis applied to particular problems. Form and function. Case studies. A significant structural design effort is required.

Prerequisite: Architecture 77.424★.

Day division, First and Second term: Six hours a week.

Architecture 77.428★ Elective Course

Workshop: Structure and Form

Study of structural nature of non-conventional space enclosure systems like cable structures, membranes, shells, submerged structures, excavated structural forms and lunar structures.

Prerequisite: Architecture 77.420★.

Day division, First or Second term: Six hours a week.

Architecture 77.432★ Elective Course

Manufacturing Processes and Materials

Offered in the Department of Mechanical and Aeronautical Engineering as Engineering 88.371★.

Architecture 77.440★ Elective Course

Design for Construction

A series of lectures and visits to building sites and subcontractors' plants to study the building process as it is affected by the architect's decision. Contractors and subcontractors participate. Analysis of decisions taken and methods used. Elemental cost analysis. Estimating costs from sketches.

Prerequisite: Architecture 77.330★ or permission of the School of Architecture.

Day division, First or Second term: Visits, lectures, seminars three hours a week.

Architecture 77.488 Elective Course
Independent Study

■ Division C

Architecture 78.310★ Elective Course
Land Development

An overview of the land development and redevelopment process and an exploration of more effective ways of participation in it. An actor-orientated approach is taken. Different participants explain their role in the process and the nature and source of information required for decision making. Case studies are used to illustrate the market studies, development feasibility, impact of development controls, emerging citizen roles, cost/benefit analysis of development alternatives, urban gaming and development trends. Day division, First or Second term: Three hours a week.

Architecture 78.319★ Elective Course
Workshop: Land Development

Introduction to the land development and redevelopment processes through application of knowledge acquired in previous studies and taken from the field. Focus on team projects supported by guest lecturers, field investigations and project discussions.

Prerequisite: Architecture 78.310★ or permission of the School of Architecture.

Day division, First or Second term: Six hours a week.

Architecture 78.320★ Core Course
Introduction to Professional Practice

An overview of the practice of architecture. Topics include professional organization and conduct, the architect's services, business law, office organization and management, contract documents, building codes, contract management, cost control, accounting and site supervision. Presentation through lectures, guest speakers and case studies from professional practices and construction representatives in the area.

Prerequisite: Clear standing to Fifth year.

Day division, Second term: Lectures three hours a week.

Architecture 78.323★ Elective Course
Workshop: Landscape Architecture

The purpose of this course is to engage students directly in the concepts and creation of landscape architecture appropriate in an urban setting; it is hoped as a result of this experience that they may make a more meaningful and useful contribution to environmental/urban design. The indoor-outdoor relationship, the functional use of plant materials, considerations of energy, light, climate, transportation, circulation, side-lots, set backs, zoning restrictions

and buildings codes are considered, and applied to practical design problems.

Day division, First or Second term: Six hours a week.

Architecture 78.329★ Elective Course
Workshop: Professional Practice

An introduction to the application of various components of a professional architectural practice. Client requirements, contract and project management, personnel and office management, specifications, cost control, etc., are developed as parts of the building process.

Day division, First or Second term: Six hours a week.

Architecture 78.330★ Elective Course
Community Development

A study of leading issues and problems in Canada's urban communities: neighbourhood preservation and planning, heritage conservation, social animation, community organization, citizen power, advocacy planning, community development, corporations, co-operative housing, social planning. Overviews and case studies, lectures and guest lecturers.

Day division, First or Second term: Three hours a week.

Architecture 78.339★ Elective Course
Workshop: Community Development

Field investigations, team projects and seminars in community development issues and problems in Canada.

Prerequisite: Architecture 78.330★ or permission of the School of Architecture.

Day division, First or Second term: Six hours a week.

Architecture 78.340★ Elective Course
City Organization and Planning Processes

An overview of the structure, form and functioning of Canadian and other countries' cities; methods for intervening in and directing processes and solving city problems: an introduction to urban problems, potentials and solutions. Topics include: physical infrastructure and forms of cities; urban facilities and networks; ecosystems, demography and social organization, and government and politics; quality of life, goals and perceptions of urbanites; urban management, development, regulation and codes, design, planning and policy-making. Lectures, guest lecturers, reading assignments.

Day division, First or Second term: Three hours a week.

Architecture 78.344★ Elective Course
Urban Design Practice

An overview of principles, methods and processes applicable to urban design problems in cities today. The role of urban design in the formation of public policies or programs for controlling or influencing development. The emphasis is on the examination of the urban design process, including analysis of urban systems and sub-systems; solution development and implementation strategies.

Prerequisite: Architecture 76.208★ or 76.308★ or permission of the School of Architecture.

Day division, First or Second term: Lectures three hours a week.

Architecture 78.345★ Elective Course

Workshop: Urban Design

A project-based workshop investigating current design attitudes and solutions affecting the physical morphology of cities. Students will undertake formally sophisticated urban design projects, explore various procedures and discuss basic urban design ideas.

Day division, First or Second term: Six hours a week.

Architecture 78.349★ Elective Course

Workshop: City Organization and Planning Processes

Interdisciplinary investigation, analysis and synthesis of the institutions, processes, environments and demography of Canadian cities. Seminars, guest lecturers, field investigations and individual and team projects.

Day division, First or Second term: Six hours a week.

Architecture 78.488 Elective Course

Independent Study

■ **Division D**

Architecture 79.101★ Core Course

Mathematics in Architecture 1

Basic mathematical skills for architecture students. Selected topics from arithmetic, algebra, geometry, trigonometry, calculus and numerical methods. Presentation through numerous applications of these mathematical areas to problems of architecture and related fields.

Day division, Second term: Lectures three hours a week.

Architecture 79.201★ Elective Course

Mathematics in Architecture 2

An introduction to mathematical reasoning, with particular applications to architecture. Topics include: isometries of the Euclidean plane and three-space; symmetry groups applied to designs, frieze patterns, wallpaper patterns and uniform polyhedra; graph theory used to solve planning problems; perspective and orthogonal projects.

Day division, First or Second term: Lectures three hours a week, problems one hour a week.

Architecture 79.211★ Core Course

Introduction to Algorithmic Problem Solving

An introduction to the solving of problems by algorithms. The morphology of the algorithmic approach to problem solution. The use of the flow chart as a verification of the logic processes of an algorithmic solution. The use of the computer as a major tool in implementing algorithmic solutions. Essential skills in computer programming using the FORTRAN programming language.

Day division, Second term: Lectures two hours a week, problems two hours a week.

Architecture 79.300★ Elective Course

Problem-Solving Methods and Models 1

An introduction to the solutions of problems by mathematical models. The morphology of mathematical model building is the major emphasis of this course. The difference between deterministic and probabilistic models. An introduction to the basics of the theory of probability. An introduction to the basics of the theory of statistics. An introduction to the basics of graph theory. Supplementary topics discussed as examples; queues, network analysis.

Day division, First or Second term: Lectures three hours a week.

Architecture 79.301★ Elective Course

Problem-Solving Methods and Models 2

A review of the state of the art in design methods. Topics include decision-making models, the nature of the design act, the politics of design decision-making, programming techniques, strategy selection, ideation, information transfer, evaluation. Lectures, guest speakers, reading assignments, discussion.

Day division, First or Second term: Three hours a week.

Architecture 79.302★ Elective Course

Building Programming

This course examines the interrelationship of programming as an integral part of the total design process and how programming is applied in alternative models of design.

Day division, First or Second term: Lectures, seminars three hours a week.

Architecture 79.303★ Elective Course

Workshop: Theatre Production

A workshop course involving students in the design and fabrication of theatre productions, one of which is staged on campus. Visiting directors, designers, technical consultants and others are invited to discuss their approach to theatre production and to offer advice and criticism on student projects. There are visits to theatres and production facilities.

Day division, First or Second term: Six hours a week.

Architecture 79.312★ Elective Course

Problems in Computing

Introduction to various types of non-numeric data, its representation within primary and secondary storage, and the manipulation of various representations. Comparative evaluation of languages for non-numeric problems. Student projects.

Prerequisite: Permission of the School of Architecture. Day division, First or Second term: Lectures two hours a week, laboratory two hours a week.

Architecture 79.315★ Elective Course

Computer-Aided Space Planning

An introduction to computer-aided plant layout and space planning techniques related to the use of two major computerized systems, CRAFT and CORELAP, will be considered. Other topics include: The McHarg

model and site planning by computer; artificial intelligence and C. Eastman's General Space Planner; clustering methods and polyominoe-like techniques; graph theoretical models; information structure and data base consequences.

Prerequisite: Architecture 79.211★ or equivalent.

Day division, First or Second term: Lectures, seminars three hours a week.

Architecture 79.320★ Elective Course

The Geometry of Form

The development of a basic vocabulary of form through identification of the rules for combining and relating the minimal identifiable elements of geometric form. Investigation of the methodologies for changing those identities in order to generate entirely new forms. Study of planar and space geometries with special emphasis on polygons and polyhedra, their singular, close and loose-packing properties. Discussions on form; geometric operations, like vertex motion, folding, reciprocation and truncation.

Text: Williams, *Natural Structure*.

Day division, First or Second term: Lectures three hours a week.

Architecture 79.325★ Elective Course

Workshop: Experimental Design

Introduction to experimental design emphasizing simulation; graphical, analog and mathematical modelling. Topics include computer simulation, physical and theoretical model testing, complete and incomplete design. Student projects.

Day division, First or Second term: Six hours a week.

Architecture 79.326★ Elective Course

Workshop: Computer Applications

Applications of existing computer programs and programming techniques to various architectural problems. Software, state of the art and applications are extensively covered. Project work may be user-orientated on the basis of existing software or development of original work. Student projects.

Day division, First or Second term: Six hours a week.

Architecture 79.327★ Elective Course

Workshop: Computer-Aided Design

Adaptation of design techniques to computer application. Bifocal approach offers the opportunity for application of existing software to interactive graphic systems and development of heuristic design models based on original work. Student projects.

Prerequisite: Permission of the School of Architecture.

Day division, First or Second term: Six hours a week.

Architecture 79.328★ Elective Course

Workshop: Computer Graphics

Use of interactive graphics hardware systems and study of file structures for graphics processing. Developmental work leading toward computer-generated art as well as implementation of production-orientated user display software is encouraged. Student projects.

Prerequisite: Architecture 79.312★ or permission of the School of Architecture.

Day division, First or Second term: Six hours a week.

Architecture 79.329★ Elective Course

Workshop: Problem Solving

Development work in applications of problem-solving techniques to design problems. Areas covered include problem definition, design alternatives, evaluation criteria, emphasizing strategies, models and methods: term project.

Prerequisite: Architecture 79.301★.

Day division, First or Second term: Six hours a week.

Architecture 79.330★ Elective Course

Workshop: Co-operative Problem Solving

Group training in the creative exchange and development of ideas; group problem-solving sessions focus on participation and roles, listening, itemized response, use of metaphor and analogy, forcefit, closure; follow-through techniques; visual brainstorming and generative graphics. Student project. Limited enrolment.

Day division, First and Second term: Six hours a week.

Architecture 79.331★ Elective Course

Workshop: Building Programming

A workshop concerned with the development and application of systematic techniques in the preparation of building programs. The topic is treated as a problem in information management, with particular emphasis on information transformation and transfer in relation to problem boundary definition, directives formulation and graphic analysis.

Day division, First or Second term: Six hours a week.

Architecture 79.340★ Elective Course

Workshop: Visual Design

A workshop program to increase the student's capacity to visualize and communicate in several graphic media, and also to increase sensitivity to form, structure, space, texture and colour.

Day division, First or Second term: Six hours a week.

Architecture 79.341★ Elective Course

Workshop: Photography

Experimentation with photography as a means of visual research and communication of the social and built aspects of the environment. Familiarity with the basic techniques of photography is required as a prerequisite. Students are required to prepare a photographic essay that explores some aspect of man's relationship with the built environment.

Permission of the School of Architecture is required.

Day division, First or Second term: Six hours a week.

Architecture 79.488

Independent Study

■ Design Studios

Research and Development Projects

Architecture 80.102 Core Course

Design Studio 1 (2.5 credits)

An introductory studio directed towards the development of basic design skills. Projects consist of abstract two dimensional and three dimensional exercises. Assignments include freehand, perspective and life drawing. There is an emphasis on craftsmanship. Day division, First and Second term: Lectures, seminars and tutorials ten hours a week.

Architecture 80.202 Core Course

Design Studio 2 (2.5 credits)

The application of ordering principles in architecture is considered in response to site, climate, function and materials and methods of construction. Small scale projects develop in complexity through both terms. Prerequisite: Architecture 80.102. Day division, First and Second term: Lectures, seminars and tutorials ten hours a week.

Architecture 80.304 Core Course

Design Studio 3A (1.5 credits)

The principles, vocabularies and craft of architecture are considered within the contexts of purpose, place and precedent. Projects address the subject of small scale building in the landscape. Prerequisite: Architecture 80.202. Day division, First term: Lectures, seminars and tutorials twelve hours a week.

Architecture 80.306 Core Course

Design Studio 3B (1.5 credits)

The continuation of the theme of Architecture 80.304 with an increase in project scope and complexity. Prerequisites: Architecture 80.202 and have taken 80.304. Day division, Second term: Lectures, seminars and tutorials twelve hours a week.

Architecture 80.351★ Elective Course

Workshop: Studies in Design

Traditional, present and possible future influences on the design of buildings and their context. Day division, First and/or Second term: Lectures and/or seminars six hours a week.

Architecture 80.403 Core Course

Design Studio 4A (1.5 credits)

The principles and vocabulary of construction and technique are considered as primary generators of architectural form. Projects are based on the design development of both small and large scale projects. Prerequisites: Architecture 80.304 and 80.306. Day division, First term: Lectures, seminars and tutorials twelve hours a week. See also Directed Study Abroad (p. 336).

Architecture 80.405 Core Course

Design Studio 4B (1.5 credits)

The principles and vocabularies arising from the relationship between architecture and the urban context in which it is situated. Projects focus on part of the urban context.

Prerequisites: Architecture 80.304 and 80.306 and have taken 80.403.

Day division, Second term: Lectures, seminars and tutorials twelve hours a week.

For students who take Directed Study Abroad in Architecture 80.403, a section will be offered in which the course content is as described under Architecture 80.403.

Architecture 80.457 Core Course

Design Studio 5A (2.5 credits)

Design projects are focused on faculty members' areas of special interest in architecture.

Prerequisite: Clear standing to Fifth year.

Day division, First term: Lectures, seminars and tutorials twenty hours a week.

Architecture 80.458 Core Course

Design Studio 5B (2.5 credits)

Student initiated design project. Students propose a design idea or issue to be developed in depth. With the advice and approval of the studio faculty, the student defines a suitable building project for this purpose and sets out parameters for the study.

Prerequisite: Clear standing to Fifth year.

Day division, Second term: Tutorials twenty hours a week.

Architecture 80.460 Core Course

Research and Development Project 5.1 (2.5 credits)

The project may be an investigation of a building, a sub-system of a building or research into a topic related to architecture. The work is developed under the direction of a tutor. The Research and Development Project Committee, with the tutor, evaluates the finished project.

Prerequisite: Clear standing to Fifth year.

Day division, First and Second term.

Architecture 80.461 Core Course

Research and Development Project 5.2 (2.5 credits)

This project may be a continuation of the project undertaken in Architecture 80.460 if approved, or a complete project in itself on a similar topic or basis. Where it is a continuation, successful completion of Architecture 80.460 is prerequisite.

Prerequisite: Clear standing to Fifth year.

Day division, First and Second term.

School of Industrial Design

Officers of Instruction

Director
W. Gilles

Professor
W. Gilles

Visiting Professor
In most years the School of Industrial Design has a Visiting Professor on its faculty.

Associate Professors
J.R. Giard
G.A. Lynn
P.R. Sharp

Assistant Professors
M. de Leeuw
J.S. Ostiguy

Sessional Lecturers
G.F. Singer
K. van der Veen

Adjunct Professor
G. Davis

General Information

Industrial design* is a creative activity, the aim of which is to determine the formal qualities of objects produced by industry. These formal qualities include the external features but are principally those structural and functional relationships which convert a system to a coherent unit, both from the point of view of the producer and of the user.

Industrial design tends to embrace all aspects of human environment which are conditioned by industrial production.

In the future, the traditional activity of design for growth may continue to be essential. It will be necessary, however, to develop a design activity which contributes to the regulating of growth processes, the conservation of resources and the protection of the environment.

*As defined by the International Council of Societies of Industrial Design.

Bachelor of Industrial Design Degree Program

In September 1973, Carleton University initiated the First year of a new four-year program leading to the Bachelor of Industrial Design degree.

The Bachelor of Industrial Design degree is awarded on successful completion of the four-year program of

studies. The program is structured to meet the requirements of the developing profession of industrial design. This implies an education with a solid general background, enabling the designer to communicate with experts in other disciplines. It also implies development of expertise in designing for one or more specific sectors in the wide field of application of industrial design. The program of studies, which was initiated as a joint venture of the Faculty of Engineering and the School of Architecture, therefore provides for an engineering-oriented as well as an architecture-oriented stream, together with all possibilities for the integration of both.

Admission Requirements

First Year

The Ontario Secondary School Honour Graduation Diploma with a minimum 65% average and including functions, calculus, chemistry and physics; or the successful completion of the Qualifying University year in science or engineering.

Entering high school students who are fully qualified academically are expected to arrange for a personal interview with a member of the School of Industrial Design faculty. Such an interview will give the School of Industrial Design a clearer idea of the seriousness of the candidate and afford the candidate an opportunity to see and learn actively about the program of the School of Industrial Design. In order to compete successfully for admission in this limited enrolment program, it is strongly recommended that the candidate present a portfolio of any kind of work that could demonstrate the applicant's creativity and aptitude for the study of industrial design.

Advanced Standing and Transfer of Credits

Applications for admission with advanced standing to the Second or subsequent years of the program leading to the Bachelor of Industrial Design degree will be evaluated on an individual basis. Advanced standing for academic subjects completed at another university or college will be evaluated for equivalence to the program requirements of the School of Industrial Design. Transfer of credit for projects in such programs as industrial design, engineering design, architecture, etc., completed at another university or college may also be considered, provided the grade is satisfactory and the student shows evidence of aptitude for design studio work by the production of a portfolio of original drawings or photographs, etc., and as a result of an interview with a designated member of the faculty of the School of Industrial Design.

Graduates from degree programs at Carleton University in architecture, engineering, science and commerce, who meet the admission requirements for the First-year of the B.I.D. degree program, could expect to be able to complete the work for the B.I.D. degree in

two years. Their first degree program should, in that case, include minimally:

- 85.100★ Introduction to Industrial Design
- 85.101★ Industrial Design Analysis
- 88.100 Engineering Graphics and Design
- 43.100 Introduction to Economics
- 49.100 Introductory Psychology

Architecture 76.120★, Theories of Environmental Design 1A; and
Architecture 76.121★, Theories of Environmental Design 1B.

Mature Matriculation

Persons who lack the normal entrance requirements as published in this calendar but who have been away from full-time studies for a minimum of two years and who are twenty-one years of age or over, by December 31 of the year in which they wish to enrol, may receive consideration for admission to a degree program.

Selective Admission

It should be noted that the number of student spaces in the School of Industrial Design is limited. Because of this it may not be possible to grant admission to all applicants who meet the foregoing requirements. Admission, therefore, will be on a selective basis with preference given to those candidates who show the highest promise of success in the course.

Course Requirements

First Year

See charts First-year of the Faculty of Engineering, p. 301 and First-year of the School of Architecture, p. 338.

First year for students enrolled in the School of Industrial Design is, for the most part, identical to either First year of the Faculty of Engineering or of the School of Architecture, depending on the orientation stream the student wishes to follow.

Students in industrial design must basically take the course load with other students in engineering or in architecture. Some courses in the First year will be given by staff from the School of Industrial Design.

While following the program of the School of Architecture or the Faculty of Engineering in First year, students registered in the B.I.D. program must complete the following courses in order to follow the prescribed Second-year program:

Industrial Design

- 85.100★ Introduction to Industrial Design and
- 85.101★ Industrial Design Analysis.

In order to be able to take these courses, students should use the available electives of their First year for this purpose.

Where, in First-year of the School of Architecture, electives are not available, students registered in the B.I.D. program may take Industrial Design 85.100★ and 85.101★ in lieu of the courses:

Second Year

Term	Lectures and Tutorials		Laboratory and Studio Projects		Course Weight
	I	II	I	II	
Architecture Electives (notes a and b)	3	3	—	—	8
Engineering or Computer Science Electives (notes a and b)	3	3	3	3	12
85.220 Form and Colour Fundamentals	2	2	4	4	8
85.230★ Visual Communication Theory and Techniques for Industrial Design	1	—	5	—	5
85.231★ Introductory Industrial Design Projects	—	1	—	6	6
43.100 Introduction to Economics	3	3	—	—	7
49.100 Introductory Psychology	3	3	—	—	7
Elective (note b)	3	3	—	—	7
Total Course Weight					60
Hours per week	18	18	12	13	

Note a

Students are required to take architecture and engineering or computer science electives with minimally the course weight as indicated. For example, they can take either two engineering half-courses with a course weight of 6 each or three computer science half-courses with a course weight of 4 each.

It is recommended that students who completed First year architecture include 88.100, Engineering Graphics and Design, in their engineering or computer science electives.

Note b

If the course weights of the chosen electives are higher than indicated in the chart, the actual course weights will be counted for the determination of academic standing.

Third Year

Term	Lectures and Tutorials		Laboratory and Studio Projects		Course Weight
	I	II	I	II	
42.208★ Introduction to Marketing (note a)	—	3	—	—	4
49.321★ Perception	3	—	—	—	4
85.310 Mass-Production Technology for Industrial Design	2	2	4	4	8
85.321★ Environmental Communication Workshop	—	2	—	4	5
85.322★ Advanced Studies in Form and Colour	1	—	5	—	5
85.330 Studio Projects Industrial Design I	2	—	10	—	8
85.331 Studio Projects Industrial Design II	—	3	—	10	9
85.360★ Anthropometrics and Ergonomics	2	—	3	—	4
85.361★ Anthropometrics and Ergonomics Workshop	—	2	—	3	4
Elective (note b)	3	3	—	—	7
Total Course Weight					58
Hours per week	13	15	22	21	

Note a

Students in industrial design can gain entry into this course by permission of the School of Industrial Design. Prerequisites are Accounting 41.100 and Economics 43.100 and either Psychology 49.100 or Sociology 53.100.

Note b

It is recommended that students choose, in consultation with their adviser, an engineering course as an elective.

If the course weight of the chosen elective is higher than indicated in the chart, the actual course weight will be counted for the determination of academic standing.

Fourth Year

Term	Lectures and Tutorials		Laboratory and Studio Projects		Course Weight
	I	II	I	II	
85.400★ Professional Practice in Industrial Design	3	—	—	—	4
85.401★ Industrial Design Seminar (note a)	—	3	—	—	4
85.430 Major Industrial Design Projects (notes b and c)	2	2	15	15	20
85.431 Minor Industrial Design Projects I (note b)	—	—	6	6	7
85.432 Minor Industrial Design Projects II (note b)	—	—	6	6	7
85.440★ Industrial Practice Internship Field Reports	—	—	—	—	4
85.450 Colloquium Cultural Subjects	3	3	—	—	7
Elective (note d)	3	3	—	—	7
Total Course Weight					60
Hours per week	11	11	27	27	

Note a

The Industrial Design Seminar will be concentrated in one week, during the Second term; no other courses can be taken during that week.

Note b

Lecture and tutorial hours for the industrial design projects will not be differentiated in the University timetable. They will be used in the briefing, instruction, and information period of the projects and be scheduled in accordance with the workplan which each student is required to submit to the Industrial Design Projects Committee of the School of Industrial Design before the end of the Second term of Third year.

Note c

Industrial Design 85.430 has a course value equivalent to 2.5 credits.

Note d

The elective must be chosen in consultation with the Industrial Design Projects Committee on the following principles:

(I) The electives chosen should serve to deepen the student's understanding of fields related to industrial design or disciplines which are relevant for industrial designers;

(II) The elective chosen should preferably be an advanced course.

(iii) The elective chosen should preferably be related to the industrial design projects and provide basic and/or actual information for these projects.

If the course weight of the chosen elective is higher than indicated in the chart, the actual course weight will be counted for the determination of academic standing.

Industrial Practice Internship

In order to provide the student with a realistic view of the possibilities and limitations of industry, and to establish and maintain good contacts and communication among the School of Industrial Design, the students and industry, the student in industrial design has to spend a period of time as an intern in industry.

These periods of industrial practice internship are to be taken prior to graduation and to be chosen in an industry that will satisfy the faculty member involved.

Students should find a suitable internship on their own initiative, although the School of Industrial Design offers placement assistance for this purpose. In cases where a suitable industrial internship is not possible, alternate arrangements will be considered.

If the industrial practice internship is not completed in time or if it is not proved successful, the student will not be awarded the Bachelor of Industrial Design degree until the missing internship is completed and proof of satisfactory results is given.

During the industrial practice internship, a study of the relationship between industrial design and the tech-

nology, production process, or functional issues at hand will be undertaken. A report is to be submitted to the school, to be filed in the technical data facilities of the School of Industrial Design and made accessible to other students.

See course Industrial Design 85.440★.

Industrial Design Projects

The industrial design projects in the Second, Third and Fourth years will represent either real or simulated situations to be developed to the stage of drawings, models, full scale mock-ups or simulated finished products, as appropriate.

The design experience in industrial design projects synthesizes and integrates all the other course work and draws on the resources from those courses, including the disciplinary expertise of the staff. It should also attempt to explore and exploit knowledge available on campus and within institutions outside.

Industrial design projects, even when they are research-oriented, will only be acknowledged when they are aiming at predetermined goals, which should be of a concrete nature, preferably objects to be made by industry. The subject or theme of the project will be determined by agreement between the student and the faculty involved.

The usual pattern of activities in the execution of an industrial design project is, in its simplest form, composed of three subsequent phases:

- (a) an analytical informative phase;
- (b) a creative or formative phase;
- (c) a descriptive or communicative phase.

Progress within this pattern of activities is made by feedback and feed-forward with intermediate evaluations. A project will not be considered complete if any of the three major phases has not been passed through, documented and evaluated.

The student will be required to keep a specified record of working hours spent on the project. This record must be available for inspection, and must be one of the documents submitted at examination.

The School of Industrial Design may conditionally approve an intended collaboration of students in the execution of industrial design projects provided that proper means of evaluation and examination are built into the project to ensure the identification of each student's contribution.

Industrial design projects will be examined by the appropriate body after each of the phases and on the planned and agreed deadlines. Students who do not meet the deadlines for submission of project work will be considered to have withdrawn from examination.

It should be noted that supplemental examination privileges will not be granted for Second-, Third-, and Fourth-year industrial design project courses (85.231★, 85.330, 85.331, 85.430, 85.431, and 85.432). This regulation implies that students who obtained a grade of

less than C- for such a course must repeat the course and attain a grade of C- or better in order to proceed in the program.

The execution of industrial design projects will require professional equipment for sketching, drawing, etc., which will not be provided by the School of Industrial Design. A list of recommended equipment is available at the administration of the School of Industrial Design. The initial costs for the minimum equipment necessary will be approximately \$500, which includes the cost of photographic equipment.

The execution of industrial design projects will require materials for sketching, drawing, reproduction, model making, etc. Moreover, travel costs may be involved. The level of total expenditure will vary considerably with the nature of the theme or subject of the project. The policy of the School of Industrial Design is to see that such costs are only partly borne by the student and that co-operation with industry and institutions outside the University will provide further funds. The student's contribution can be estimated generally in the order of \$250 per year.

Documents, sketches, drawings, models, etc. resulting from industrial design projects must be registered with the administration of the School of Industrial Design as the authorized work of the student while studying at the School of Industrial Design of Carleton University.

Resulting documents, sketches, drawings, models, etc. from industrial design projects must be retained by the student for a minimum period of two years after production. During this period the student must have these results available in good condition for the School of Industrial Design for exhibition, display or publication purposes. During this time, the student will be required to advise the Director of the School of Industrial Design, well in advance, about any transaction, exhibitions, display or publication, which will involve these results.

Students are not allowed to use the result of industrial design projects for commercial purposes without written permission of the Director of the School of Industrial Design.

Fourth Year Industrial Design Projects

All regulations and arrangements as described under "Industrial Design Projects" apply to the Fourth-year projects. Over and above these regulations, Fourth-year industrial design projects are subject to the following:

Fourth-year industrial design projects are conducted, supervised, administered and examined by the Industrial Design Projects Committee, reporting to the Faculty Board of the School of Industrial Design.

The subjects or themes of industrial design projects are determined by agreement between the student and the Industrial Design Projects Committee. This agreement should be reached before the end of Second term in the Third year.

Students registering in Fourth year, who have failed to reach an agreement with the Industrial Design Projects Committee before the end of the Third year, are given assignments for Fourth-year projects by the committee after registration. Such assignments are binding.

In order to reflect the actual situation of the professional industrial designer, the student is required to undertake more than one project to be executed simultaneously in Fourth year. The student is required to plan the work on the Fourth-year industrial design projects well in advance, in consultation with the Industrial Design Projects Committee.

The proposal for a work plan must be submitted to the Industrial Design Projects Committee for approval before the end of the Second term of Third year.

The specified record of working hours spent on Fourth-year industrial design projects must be available for inspection by the committee at any time and be among the documents to be submitted at the final examination.

General Information

Course Pattern and Counselling

The program of study in industrial design is necessarily structured to meet the requirements in education and training for a professional career in industrial design. The First-year's course pattern follows that of either the School of Architecture or the Faculty of Engineering, with adaptations through the elective courses offered. The Second, Third and Fourth years of the School of Industrial Design are structured to build on the material of the First year with minor conversions to suit a program with an identity of its own. The emphasis in Fourth year is on the industrial design projects, the other courses preferably to be considered as supporting sources of knowledge and understanding.

When a student first registers in the School of Industrial Design, he or she is assigned a faculty member of the School of Industrial Design, who will act as the student's adviser. The adviser usually counsels the student for the duration of the undergraduate program. This counselling includes program requirements, selection of electives and course and program approvals.

Progress through the program in First year is by means of the systems of the School of Architecture and the Faculty of Engineering as appropriate (pp. 338 and 301). Progress through the program in Second, Third and Fourth years is by means of the modified credit system as used in the Faculty of Engineering.

For purposes of scheduling, each student is considered as being in a particular year of the program. In order to move from Second to Third or from Third to Fourth year of the program, a student must not be

deficient in the industrial design project course(s) and in no more than one of the other courses. This requirement does not relate to a student's academic status, but only to the nominal year designation. However, a student who is taking courses in Fourth year while designated as being in Third year, has the responsibility for satisfactorily resolving any prerequisite deficiencies and difficulties in the course program.

Course Level

The year level of a course can be read from the course number; for example, the course Industrial Design 85.331 is at Third-year level and 85.450 is at Fourth-year level. This indicates the general academic background required. Specific prerequisites are also given where appropriate. Students may take courses at a year level higher than their current registration; they are advised, however, to consult the course instructor if they have doubts regarding their background preparation. In some cases, the School of Industrial Design may also be able to waive specific prerequisites.

Electives

The School of Industrial Design offers only a few elective courses under its own jurisdiction. It is strongly recommended, however, that students in industrial design choose from the wide variety of courses in the humanities, social sciences, engineering or multidisciplinary courses offered in the University. Industrial design projects most often represent complex situations which require background information that often will be better understood when supported by appropriate elective courses in other disciplines.

Qualifying University Year Courses

Qualifying University year courses cannot be used to satisfy any of the elective requirements in any year of the regular course pattern.

Timetables

All undergraduate courses of the School of Industrial Design are normally offered in the Day division only and are scheduled in the timetable of the University.

Carleton Industrial Design Students' Association

CIDSA organizes social and academic events to develop esprit de corps among industrial design students and faculty. The Association also represents students within the School of Industrial Design regarding academic and/or policy matters to the University and the profession.

Grading System

Standing in courses will be determined by the School of Industrial Design and will be shown by alphabetical grades. The grades used with their corresponding grade points are as follows:

A+ 12	B+ 9
A 11	B 8
A- 10	B- 7
C+ 6	D+ 3
C 5	D 2
C- 4	D- 1

Passed Supplemental Examination: **D-**

Notations to represent special circumstances are as follows:

Aeg

Aegrotat standing is a pass standing granted despite absence from the final examinations. It may be granted by the Committee on Student Standing and Promotion of the School of Industrial Design only in response to a student's written request. Aegrotat standing will be granted only in exceptional circumstances and if the term work has been of high quality.

F

Failure: no academic credit.

FNS

Failure, but with supplemental privileges withdrawn because of unsatisfactory term work or an unacceptably low mark in the examination. No academic credit.

Wdn

Withdrawn in good standing: no academic credit.

Abs

Absent from formally scheduled final examinations where the necessary term work has been completed. No supplemental privileges. No academic credit.

Def

Students who are absent from final examinations or who are unable to complete their course work for medical or compassionate reasons may apply to the Committee on Student Standing and Promotion of the School of Industrial Design for deferred examination privileges. Such applications must:

1. be made in writing to the Engineering Faculty Registrar's Office not later than one week after the date of the examination; and
2. be fully supported in the case of illness by a medical certificate or by appropriate documents in other cases.

Academic Standing, Promotion and Probation

First Year

During the First year, academic standing, promotion and probation of a student registered in the B.I.D. program is under the jurisdiction of the School of Architecture or of the Faculty of Engineering, whichever is applicable (see p. 312 for the program of the Faculty of Engineering and p. 333 for the program of the School of Architecture).

Promotion to the Second year of the B.I.D. program requires the same academic standing as required for promotion to Second year of the School of Architecture or Second year of the Faculty of Engineering, for students who were enrolled in the architecture or engineering stream respectively.

Second, Third and Fourth Years

The academic standing of each student in the B.I.D. program will be reviewed prior to fall registration. At that time, the student's previous record, including courses from the preceding Summer session and supplemental examination results, will be considered.

A student who, upon review, no longer meets the requirements for satisfactory academic standing, will be placed on academic probation. A student may be on academic probation only once in the Bachelor of Industrial Design program.

A student on probation will be required to repeat any core courses and repeat or replace any elective courses from the previous year's registration which are below a C- level.

A student on probation who fails to meet the conditions will lose undergraduate status and will be ineligible for future registration in the B.I.D. program.

To achieve satisfactory academic standing, the student must:

1. meet the weighted grade-point average required for the year of study just completed;
2. meet the weighted cumulative grade-point average required for all courses taken as part of the Bachelor of Industrial Design program;

The required weighted cumulative grade-point average and the weighted grade-point average for the year are:

- 2.8 after two years of study;
- 3.1 after three years of study;
- 3.4 after four years of study.

A year of study, as used here, refers to the student's period of study and not to the program year defined in the previous section of these regulations. Calculation of the weighted average is based on all the courses in which the student was registered during the year being completed, plus the courses of previous years. The most recent grade obtained in each course will be used to compute the grade-point average.

3. not receive a grade of *F*, *FNS* or *Abs* in the year of study just completed in more courses than the allowable numbers listed below:

Number of Full Course Equivalents Taken	Maximum Number of Full Course Equivalent <i>F</i> , <i>FNS</i> or <i>Abs</i> Allowed
0.5 — 1.0	0
1.5 — 2.5	0.5
3.0 — 4.0	1.0
4.5 — 5.5	1.5
6.0 or more	2.0

4. achieve a grade point of 4.0 (C-) or better in each of the industrial design project courses.

Students with Advanced Standing

Students admitted with advanced standing must obtain an average appropriate to their level of admission but only those courses taken at Carleton University will be included in the evaluation.

Graduation

In order to fulfil the minimum graduation requirements for the degree of Bachelor of Industrial Design, a candidate must have met all the course requirements of the First to Fourth years, inclusive, with cumulative weighted grade-point average of at least 3.4. In addition, the candidate must have achieved a grade point of 4.0 or better in each of the industrial design project courses and be recommended by the School of Industrial Design.

Degrees with Distinction

Upon recommendation of the School of Industrial Design, the notation "with High Distinction" may be made on the academic records of a candidate for the degree of Bachelor of Industrial Design. To receive this recommendation, the candidate is expected to obtain a weighted grade-point average of at least 9.0 in the course requirements of the final year and, in addition, a weighted grade-point average of at least 7.8 in the course requirements of the First to Fourth years, inclusive.

Upon recommendation of the School of Industrial Design, the notation "with Distinction" may be made on the academic records of a candidate for the degree of Bachelor of Industrial Design. To receive this recommendation, the candidate is expected to obtain a weighted grade-point average of at least 7.8 in the course requirements of the final year and, in addition, a weighted grade-point average of at least 6.6 in the course requirements of the First to Fourth years, inclusive.

Courses Offered

Industrial Design 85.100★

Introduction to Industrial Design

An overview of the theoretical background of the phenomenon industrial design, consisting of such topics as: the definitions and dimensions of design and industrial design, its nature and its historical evolution; the notion of quality; quality aspects in man-made objects; formal qualities as determinants for categories of design; design methods; design management in industry; professional practice of industrial design and industrial design promotion, nationally and internationally. Practising industrial designers are invited to present case studies of their activities. (Also listed as Architecture 76.206★.)

Day division, First term: Lectures and discussions three hours a week. (Course weight 4.)

Industrial Design 85.101★

Industrial Design Analysis

The various problems involved in industrial design are analysed. Among others: the relationship with principle techniques and mass-production technology; problems of uniformity and variety, specialty and versatility in production; problems of tolerances; the role of ergonomics and anthropometrics in design; industrial design and environment; speculations about future industrial design approaches with regard to pollution and conservation of resources; adaptation of value-analyses to the field of industrial design. (Also listed as Architecture 76.211★.)

Prerequisite: Industrial Design 85.100★ (Architecture 76.206★).

Day division, Second term: Lectures and discussions three hours a week. (Course weight 4.)

Industrial Design 85.220

Form and Colour Fundamentals

The objective of the course is to encourage the student to approach the phenomena of form and colour systematically. Known systems of form determination and colour identification are evaluated. Properties of structural elements of form and their interactions in ranges, proportions, static and dynamic symmetries in two and three dimensional compositions are studied. Form and colour in nature are compared with form and colour in man-made environments. Further topics of the course are the appearance of form and colour under various conditions and in various positions, the expression of form and colour, typology of objects, form organization and form description and colour specification.

Day division: Lectures and tutorials two hours a week, laboratory four hours a week. (Course weight 8.)

Industrial Design 85.230★

Visual Communication Theory and Techniques for Industrial Design

An introduction to the theory and basic techniques of mechanical drawing and sketching as an aid to design

projection, auxiliary, oblique and isometric views. Introductory material is also presented in basic sketching, ideation and visualization, together with presentation techniques.

Day division, First term: Lectures and tutorials one hour a week, laboratory five hours a week. (Course weight 5.)

Industrial Design 85.231★

Introductory Industrial Design Projects

The introductory industrial design projects deal with product development theories in connection with case studies. The laboratory work of this course gives the student an opportunity to apply the experience of Industrial Design 85.230★ in a real product design situation, where an existing product is analyzed and proposals for improvement and innovation are produced. The emphasis is on the application of visual communication techniques in design.

Prerequisite: Industrial Design 85.230★.

Day division, Second term: Lectures and tutorials one hour a week, laboratory six hours a week. (Course weight 6.)

Industrial Design 85.310

Mass-Production Technology

This course attempts to generalize the transformation techniques for all operational materials in modern industry. The course presents a survey of the various techniques applied to material in its liquified, plastified or solid state of aggregation, such as casting, injection molding, extruding, forging, vacuum forming, deep-drawing, stamping, folding, cutting, machining, sintering, joining, laminating and finishing operations. The techniques are merited in terms of economics and accuracy. The role of templates and molds is emphasized and properties and limitations of molds are studied.

Prerequisite: Third-year registration.

Day division: Lectures and tutorials two hours a week, laboratory four hours a week. (Course weight 8.)

Industrial Design 85.312★

Graphics Technology and Design

Survey of techniques and processes used in the printing and blockmaking industry and the relationship of these processes to graphic design. Typeface design and the development of type and families of typeface from historical sources. Typeface as exponents of cultural trends. Basics underlying typography and layout in graphic design. Minor graphic design projects are executed in connection with the lectures.

Day division, First term: Lectures and tutorials three hours a week, laboratory three hours a week. (Course weight 4.)

Industrial Design 85.313★

Package Engineering and Design

Survey of processes and materials used in the packaging industry. Principles of package engineering and design for the transportation and distribution of mass-

produced products. Packaging design as integrated in marketing processes; product and brand identification; corporate identity through package design. Minor packaging design projects are executed in connection with the lectures.

Prerequisites: Third-year registration and Industrial Design 85.312★.

Day division, Second term: Lectures and tutorials three hours a week, laboratory three hours a week. (Course weight 4.)

Industrial Design 85.321★

Environmental Communication Workshop

It is recognized that the objects of our environment, besides serving their primary usage, are most often used as a medium to communicate man's personal or collective ideas. The design of objects and environments can, to a great extent, be seen in this context and this course is intended to explain the major mechanics of communication in general and of communication by means of objects in particular. Analyses of objects and environments with respect to communicative functions are undertaken and experiments are conducted.

Prerequisite: Third-year registration.

Day division, First or Second term: Lectures two hours a week, laboratory four hours a week. (Course weight 5.)

Industrial Design 85.322★

Advanced Studies in Form and Colour

Students may continue the research and study encountered in Industrial Design 85.220 by doing advanced research in some specific area of the phenomena of form and/or colour. Directed study.

Prerequisite: Industrial Design 85.220 or permission of the School of Industrial Design.

Day division, First or Second term: Lectures one hour a week, laboratory five hours a week. (Course weight 5.)

Industrial Design 85.330

Studio Projects Industrial Design I

The industrial design projects to be accomplished are of a simple nature, based on a given briefing and program of requirements. The emphasis is on the creative and executive phases of the design process.

Prerequisites: Industrial Design 85.230★ and 85.231★ or permission of the School of Industrial Design.

Day division, First term: Lectures and tutorials two hours a week, laboratory ten hours a week. (Course weight 8.)

Industrial Design 85.331

Studio Projects Industrial Design II

Industrial design projects II are of a more complex nature and may be accomplished with experts from other disciplines. These projects begin with an extensive period of orientation on the given problem areas from which the program of requirements is derived, which present the criteria for further creative and executive work. The choice of design assignments is

made with the consent of the students involved. It is considered to be important that the student is doing a complete job, including the accomplishment of all the sketchwork, the making of preliminary models, product drawings and modelling.

Prerequisite: Industrial Design 85.330.

Day division, Second term: Lectures and tutorials three hours a week, laboratory ten hours a week. (Course weight 9.)

Industrial Design 85.335★ and 85.336★

Third-Year Special Industrial Design Studies

Special Industrial Design Studies deal with specific projects, which may differ from year to year depending on the availability of specialists in a particular field or study opportunities as they present themselves.

Prerequisite: Third- or Fourth-year registration, or permission of the School of Industrial Design.

Evening division, First and Second term: Lectures, tutorials and laboratory six hours a week. (Course weight for each course 4.)

Industrial Design 85.360★

Anthropometrics and Ergonomics

Concepts of human engineering, anthropometrics and ergonomics are studied, researched and experimentally applied. Special emphasis is given to limits of human performance, visual and tactile displays, man-machine and man-environment interface, measurement, etc.

Evening division, First term: Lectures and discussion two hours a week, laboratory three hours a week. (Course weight 4.)

Industrial Design 85.361★

Anthropometrics and Ergonomics Workshop

Laboratory work and experimentation in anthropometric and ergonomic factors as they affect industrial design.

Prerequisite: Industrial Design 85.360★.

Evening division, Second term: Lectures and discussion two hours a week, laboratory three hours a week. (Course weight 4.)

Industrial Design 85.400★

Professional Practice in Industrial Design

The course surveys how industrial designers practise as independent consultants, and how they are employed in industry. The organizational aspects of independent offices of industrial design, their responsibilities towards their clients and their ways of operation are compared with the role of industrial design and the organizational aspects of the profession within the framework of industrial management. Topics include the form of contracts for industrial design consultancy, ways of determination of fees, legal implications of the profession including those of patents and copyrights. The course also deals with the organization of the profession on a national and an international basis. Representative industrial designers are invited to give their views on professionalism and

to present case histories of their operations.

Prerequisite: Industrial Design 85.100★ (Architecture 76.206★).

Day division, First term: Lectures and discussion three hours a week. (Course weight 4.)

Industrial Design 85.401★

Industrial Design Seminar

Each year a special topic is chosen to be elaborated on and discussed. The topics deal with problems in the relationship of industrial design to other disciplines. Experts in other disciplines are invited to participate in and contribute to the seminar. Students are required to submit and defend a thesis, based on their participation in the seminar, at the time of presentation of the Fourth-year industrial design projects.

Prerequisite: Registration in Fourth-year industrial design projects. (Course weight 4.)

Industrial Design 85.420★

Form Organization

Form organization attempts to design, define and prescribe solids of monolithic nature by means of an abstract system which can be used for instructional purposes to make and verify materialized approximations of such solids. A three-dimensional locus is an example of such a system; other systems are based on controlled growth patterns, geometric generation, typological generation, etc. The course intends to describe variations of such systems, which the students are required to apply in laboratory exercises.

Prerequisite: Engineering 88.100 or Industrial Design 85.230★ or Industrial Design 85.220 or permission of the School of Industrial Design.

Day division, First or Second term: Lectures, tutorials and laboratory six hours a week. (Course weight 4.)

Industrial Design 85.430

Major Industrial Design Projects

The major Fourth-year industrial design projects should represent a theme from which one or more problem areas can be derived or narrowed down. The problem areas chosen should preferably be product-oriented and be of sufficient complexity. Preferably, the assignment should be undertaken in co-operation with off-campus organizations, industry, etc., to increase the realism of the approach, at the same time introducing the student to practice and placement. Depending on the nature of the assignment, the results of the design work in these major projects may deviate from the usual accomplishments of the executive phase of the process, but they should bear evidence of the student's involvement and thorough approach. See also: Industrial Design Projects, and Fourth-year Industrial Design Projects (p. 353).

Prerequisite: Industrial Design 85.331 or permission of the School of Industrial Design.

Day division: Lectures and tutorials two hours a week, laboratory fifteen hours a week. (Course weight 20. Course value equivalent to 2.5 credits.)

Industrial Design 85.431

Minor Industrial Design Projects I

The minor industrial design projects mainly serve to enable students to demonstrate their versatility. The choice of the minor projects, therefore, must be in balance with the major projects. Although preferred, it is not strictly required that the minor projects be product-design oriented, nor need they be derived from actual utilization-problem areas. They could represent research in complementary design fields such as communication, graphic design or design experiments. Although the minor design projects may be of a less complex nature than the major projects, they should always conform to academic standards of quality and be handled in the same systematic way and with the same thoroughness as the major projects. See also: Industrial Design Projects, Fourth-year Industrial Design Projects (p. 353).

Prerequisite: Industrial Design 85.331 or permission of the School of Industrial Design.

Day division: Laboratory six hours a week. (Course weight 7.)

Industrial Design 85.432

Minor Industrial Design Projects II

See Industrial Design 85.431.

Prerequisite: Industrial Design 85.331 or permission of the School of Industrial Design.

Day division: Laboratory six hours a week. (Course weight 7.)

Industrial Design 85.435★ and 85.436★

Fourth-Year Special Industrial Design Studies

Like the Third-year Special Industrial Design Studies, those of Fourth year deal with specific projects, which may differ each year depending on the availability of specialists among the faculty of the School of Industrial Design or on particular opportunities as they present themselves.

Prerequisite: Fourth-year registration or permission of the School of Industrial Design.

Day division, First and Second term: Lectures, tutorials and laboratory six hours a week. (Course weight for each course 4.)

Industrial Design 85.440★

Industrial Practice Internship Field Reports

During the periods of internship in industry, or in alternative internships approved by the School of Industrial Design, the student is required to study technological phenomena in their relationship to industrial design. At the end of each period, a field report, describing such phenomena and relationships, must be submitted to the School of Industrial Design for evaluation and marking. The quality and quantity of the field reports must minimally reflect a period of internship study of sixteen weeks. Copies of field reports will be filed in the School of Industrial Design to be accessible to other students. (Course weight 4.)

Industrial Design 85.450

Colloquium Cultural Subjects

This colloquium is seen as an opportunity to introduce various cultural subjects by experts from these fields. The perspective of the colloquium is anthropological and the objective is to give the students a sense of context and relevance of industrial design as an integral part of our culture.

Prerequisite: Industrial Design 85.100★ (Architecture 76.206★).

Day division: Lectures and tutorials three hours a week. (Course weight 7.)

Interdisciplinary Courses

Arts and Social Sciences

Humanities 10.100

An examination of selected works, from Biblical times to the present, illustrating the various dominant views on the nature of man and his attempts to understand himself and the world about him.

Prerequisite: First-year standing or higher.

Not offered 1982-83.

Humanities 10.200★

An examination of selected works illustrating various dominant views on the nature of man and his attempts to understand himself and the world about him in the context of the twentieth century as seen from points of view of history, philosophy, social science and literature.

Prerequisite: Second-year standing or higher.

Not offered 1982-83.

Interdisciplinary 04.288

Introduction to Women's Studies

A survey course, designed to increase the student's understanding of the position of women in contemporary society. The course offers an introduction to such issues as biological and cultural sex differentiation, women and literature, women and religious institutions, women and politics, women and social and health services and women and the law. A brief introduction to the intellectual and social origins of feminism and a survey of women's place in Western European history provides a context for examining women's position in contemporary society.

Evening division: Lectures three hours a week.

D. Gorham, J. Vickers

Interdisciplinary 04.390

The Literature of Existentialism

A study of the origins, development, and principal characteristics of existentialist literature as the paramount expression of the writer's concern with *la condition humaine*. (Also listed as English 18.390.) All assigned readings will be in English.

Prerequisite: Permission of the Department of English.

Not offered 1982-83.

Science

Science 60.100

Man in His Environment

This course is designed to acquaint students in arts, social sciences and engineering, with the methodology of science in approaching a problem. Included is a general description of the aims and methods of experimental science with an emphasis on environmental and ecological problems. The historical aspects of scientific discoveries are examined, particularly those that are influencing present society. Particular attention is directed to the interactions of science and

society and to man's influence and impact on the natural environment. In a framework of the natural sciences, emphasis is on the limits of the natural systems in which man is a member.

Day division: Lectures three hours a week.

H.H.J. Nesbitt

Interdisciplinary Science 00.200

Physical Anthropology (Introduction to the Study of Prehistoric Man)

This course is designed to acquaint students of the Second and Third years (who need not have taken any previous courses in biology) with the evolutionary history of man. The lectures and demonstration periods make extensive use of the University's large collection of casts of the fossils that have been found to date and upon which the present history of the descent of man is based. Persons intending to take this course are advised to consult with the instructor in the spring before beginning the course for a list of the suggested reading.

H.H.J. Nesbitt

Technology, Society, Environment Studies

Our society increasingly faces problems requiring communication among specialists of different disciplines. This is at least in part a result of increasing specialization of people and jobs. The multidisciplinary problems raised by the interaction of an industrial society with its environment, its resource base, and its complex technical systems are addressed by three courses organized by the Technology, Society, Environment Committee. These courses develop the multidisciplinary perspective through problem units on topics including energy, the industrial revolution, pollution, transportation, political regulation of technology, and the consumer society concept, and through team projects which bring together students working in different disciplines. The three courses are Technology, Society, Environment 59.300, 59.401★ and 59.402★. They are described on pp. 439-441.

Other Courses

African Studies, see p. 432.

Asian Studies, see p. 433.

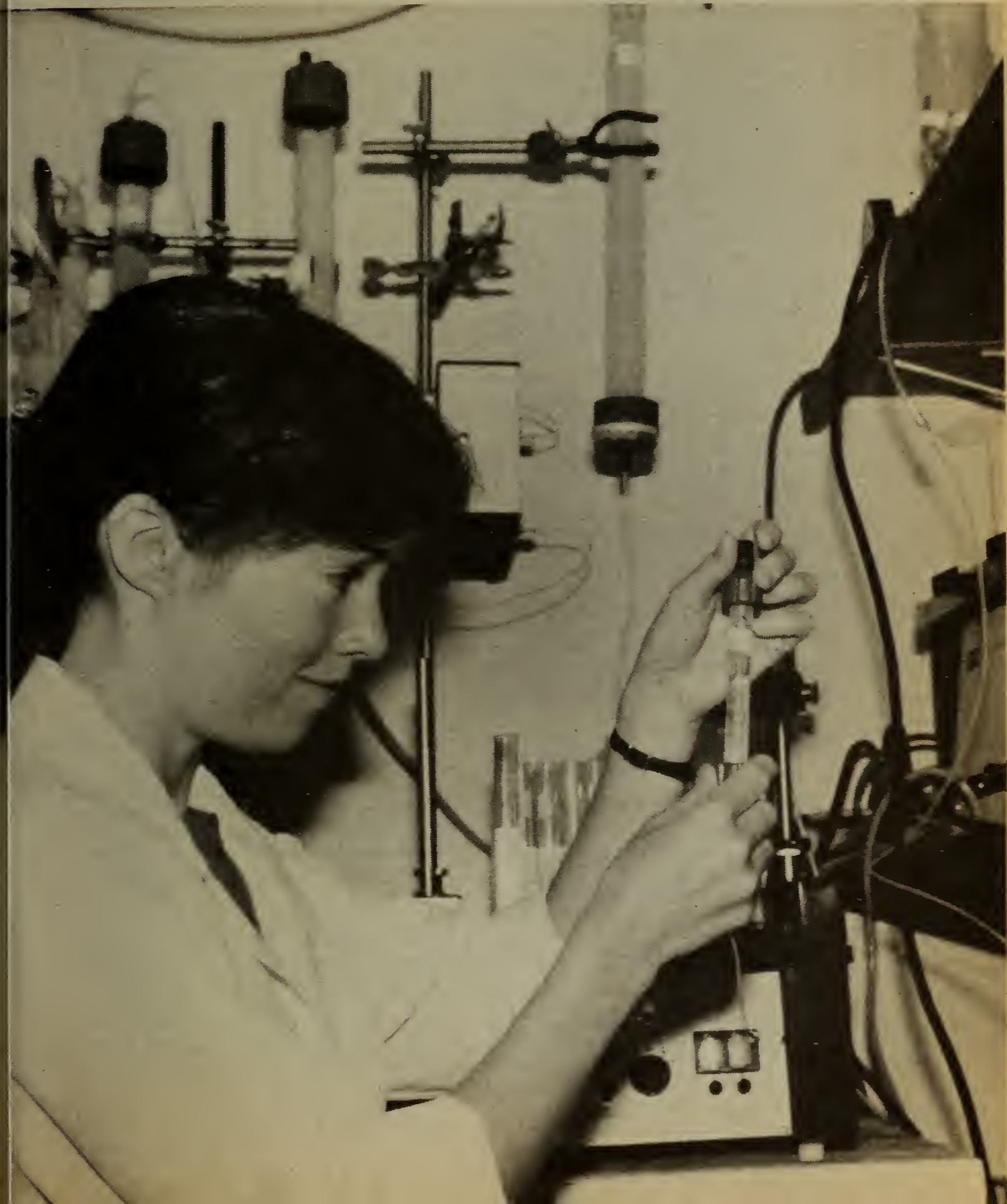
Medieval Studies, see p. 438.

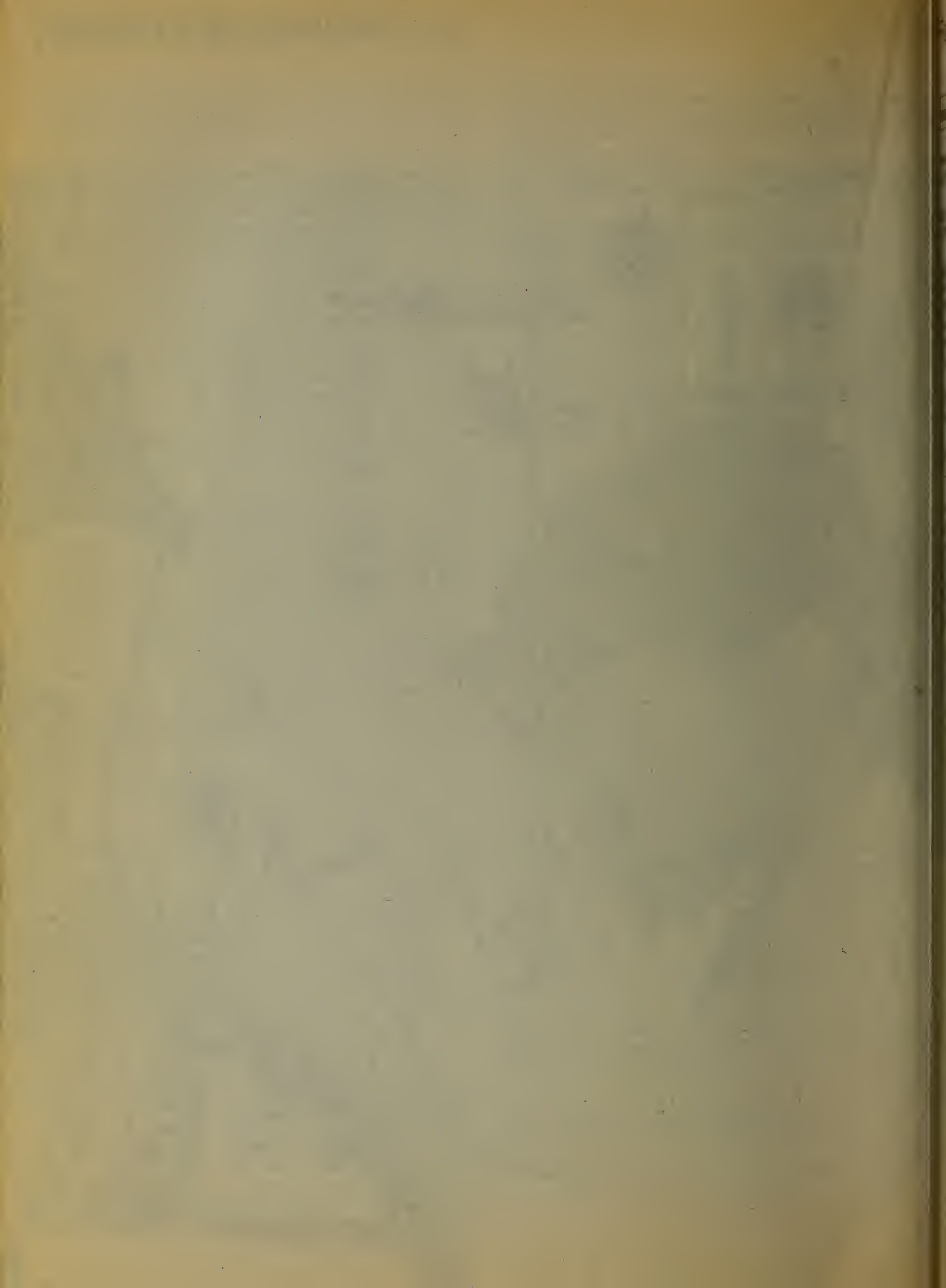
Urban Studies, see p. 442.

Women's Studies, see p. 443.

Directed Interdisciplinary Studies, B.A.

For information about the B.A. Directed Interdisciplinary Studies program see p. 131.





Officers of the Faculty

Dean

B. Skippen

Secretary of the Faculty

R. Gardner

Departmental Chairmen

Biology, H.G. Merriam

Chemistry, D.R. Wiles

Geology, D.H. Watkinson

Mathematics and Statistics, K.S. Williams

Physics, M.K. Sundaresan

Director of the Institute of Biochemistry

M. Neelin

Chairman of the Integrated Science Studies Committee

L. Wolfson

Chairmen of Interdepartmental Committees

Biology and Geology, K. Hooper

Biology and Physical Geography, H.G. Merriam

Chemistry and Geology, D.H. Watkinson

Geology and Physics, G. Ranalli

Geology and Statistics, J.E. Graham

Mathematics and Physics, M. Rahman

Chairman of the Committee on Admission and Studies

R.A. Shigeishi

Faculty Registrar

B.R. Lifeso

Director, Science Technology Centre

A.A. Raffler

The Science degree program with Honours is designed for those students who wish to deepen and extend their studies in one particular field or area for the purpose of preparing themselves for graduate studies, or for entrance to the Specialist's Certificate of the Ontario College of Education or other fields of scientific endeavour. Honours may be taken in biochemistry, biology, chemistry, computer mathematics, geology, integrated science studies, mathematics, operations research, physical geography, physics, psychology and statistics. Combined Honours may be taken in biology and geology, biology and physical geography, chemistry and geology, computer science and mathematics, integrated science studies and computer science, geology and physics, geology and statistics, mathematics and physics, and in physics and computer science. The detailed programs are given in the appropriate departmental sections of the calendar. The Honours program of each student is under the direct supervision of an Honours adviser of the student's department.

Accelerated Progress

Students registered in Qualifying University year who successfully complete two years or ten courses at the University with a B- or 70% average may have their programs assessed for the purpose of reducing the number of courses required to graduate. This reduction may be made for any student registered in the Faculty of Science who satisfies the promotion requirements for First-year Science within one academic year after admission to Qualifying University year Science with a grade-point average of not less than 7.0 (B-) over courses taken and the recommendation of a Major department or interdepartmental program committee.

General Information

The Faculty of Science includes the Departments of Biology, Chemistry, Geology, Mathematics and Statistics, and Physics and provides course programs leading to the degrees of Bachelor of Science, Bachelor of Science in Integrated Science Studies and Bachelor of Science with Honours.

The Science degree program is designed to provide specialization in one field of study called the Major field while permitting the candidate to select other courses from complementary fields or disciplines in which he or she has a particular interest. The Major fields include biology, chemistry, computer mathematics, geology, integrated science studies, mathematics and physics, and the corresponding programs are detailed in the departmental sections of the calendar.

For information about the Integrated Science Studies degree program see p. 398.

Admission Requirements

Qualifying University Year in Science

The Ontario Secondary School Graduation Diploma. A 70% average must be presented on a minimum of 10 advanced or enriched phase credits at Levels 3 and 4, including an appropriate preparation in chemistry, physics and level 4 mathematics.

Bachelor of Science, Major Program*First Year*

1. The successful completion of five courses approved for a Qualifying University year Science program with an average of C- or better in the courses in mathematics and at least two experimental sciences; or

2. The Ontario Secondary School Honour Graduation Diploma with a minimum 60% average and including functions, calculus and two experimental sciences.

Prospective students should note that, while only a 60% general average is required for admission, they should have at least 60% in the mathematics and science subjects offered. Applicants from outside the province of Ontario must present acceptable equivalent certificates generally required for admission to universities in their own provinces or countries.

Advanced Standing

1. To be admitted to Second year a student must have completed the equivalent of the First-year Science program with the required academic standing.
2. Applications for admission to the Third or subsequent years will be evaluated on their merits and advanced standing granted for studies undertaken elsewhere when these are recognized as the equivalent of subjects offered at Carleton University. Work taken in the Faculty of Engineering may be counted toward a degree in science should the student wish to transfer from the Faculty of Engineering at the end of the First or Second year.
3. Students not admitted to a degree program but taking courses at Carleton University as Special students may, on transfer to a Science degree program, receive credits for not more than seven courses, four of which must meet the First-year promotion requirements.

Bachelor of Science Honours Program

1. (a) A new student desiring admission to Honours in science should so indicate on the application for admission to undergraduate studies. The student may indicate the Honours program desired, in which case the application will be forwarded by the Registrar to the appropriate department or committee for approval. A student who does not wish to indicate the particular program may be admitted to First-year Honours science. Any such student must elect a particular Honours program before entering Second year.
(b) An "in course" student wishing to enter an Honours program must apply to the chairman of the appropriate department or committee.
2. For entry to the First year of an Honours program a student must have an average of 65% or better in the subjects of Grade 13, as listed under the admission requirements for the Major program, or have a grade-point average of 4.0 or better in the courses of Qualifying University year and the recommendation of the Honours department or committee. Students presenting credits for one or more repeated subjects or courses may not be admitted directly into an Honours program except on the recommendation of the department or committee concerned.
3. For entry to an Honours program after the completion of First year, a student must have a grade-point average of 6.0 or better in the Honours subject(s), an overall grade-point average of 4.0 or better and the recommendation of the Honours department or committee.

4. For continuance in an Honours program the student must maintain a grade-point average of 6.0 or better in the Honours subject(s), an overall grade-point average of 4.0 or better and be recommended by the Honours department or committee. At the beginning of his or her last five courses the student must have:

- (a) a grade-point average of 6.0 or better in the Honours courses;
- (b) an overall grade-point average of 4.0 or better;
- (c) a grade of C- or better in at least half of the courses to be credited toward his or her degree;
- (d) the recommendation of his or her Honours department or committee. Otherwise the student may not remain in Honours.

5. Students applying for admission to Honours in science at Carleton after having obtained a degree from Carleton or another university shall meet the same criteria as specified in 2 to 4.

6. No student may be admitted to Honours in science without satisfying the requirements for entry to the corresponding Major program.

7. While the consent of the department or committee concerned is necessary for entry to an Honours program, the department cannot establish a standard of entrance based on a grade-point average which is higher than that established by the faculty as set out in the foregoing paragraphs. Students who consider that they meet the requirements for entry to an Honours program but who have not been accepted by any department may appeal to the Science Committee on Admission and Studies for review of the case. The Committee will report to the Science Faculty Board on all such appeals. It should be noted, however, that departmental capacities to accept all qualified Honours candidates may be limited by physical resources.

8. Students in the final year of a Major degree program wishing to be considered for entry to an Honours program must apply to the Science Faculty Registrar's Office to have their names withdrawn from the graduation list before March 1 of that year. If subsequently the student is not accepted for an Honours program, the student must reapply for graduation.

Course Requirements

Qualifying University Year in Science

A Qualifying University year is offered which is the equivalent of Ontario Grade 13 (Senior Matriculation). The program consists of the following five courses:

1. Mathematics 69.006★ and 69.007★;
2. Two courses selected from Chemistry 65.010, Physics 75.010, Biology 61.101, Geology 67.100;

4. Two other courses selected from any of the foregoing subjects not already presented and from other courses approved for a Qualifying University year Science program as follows:

Science: Biology 61.101, Chemistry 65.010, Geology 67.100, Physics 75.010.

Arts or Social Sciences: Any arts or social sciences course approved for First-year science students for which the student has the required prerequisite.

Note:

Normally a student admitted to degree studies in the Faculty of Science with deficiencies in meeting the admission requirements for First year (see p. 363) will be subject to the promotion regulations governing Qualifying University year students. (See p. 363). However, students whose selection of courses satisfies the requirements of the First year Science program (see below), may be subject to the promotion regulations governing First year students.

First Year

The First year program leading to the degree of Bachelor of Science consists of five courses approved for a First year Science program including:

- (a) mathematics;
- (b) two experimental science courses chosen from two different departments of biology, chemistry, geology or physics;
- (c) two additional courses chosen from science, mathematics, arts, social sciences, computer science (except 95.101★) or engineering.

Students who have declared a Major or Honours in a mathematics program in their First year may replace one of the experimental sciences under (b) by a credit in computer science (except 95.101★).

In establishing their First-year program of courses, students should consult with the chairman of their Major department, the chairman of the Integrated Science Studies Committee, or the chairman of the appropriate interdepartmental committee. Students who have not yet selected a Major field should select those First year courses which will give them a wide choice of fields for the Second year. Dependent on the field, the five courses of First year should include the following:

1. **Biochemistry:** Biology 61.100 or 61.101, Chemistry 65.100, Mathematics 69.107★ and 69.117★, Physics 75.100;

2. **Biology:** Biology 61.100 or 61.101, Chemistry 65.100, Physics 75.100 or 75.105, Mathematics 69.107★ and 69.117★ or 69.127★, or Mathematics 69.102 and 69.112;

3. **Chemistry:** Chemistry 65.100, Physics 75.100, Mathematics 69.107★ and 69.117★, and one of Biology 61.100 or 61.101 or Geology 67.100;

4. **Geology:** Chemistry 65.100, Geology 67.100, Mathematics 69.107★ and 69.117★ or 69.127★, and one of Biology 61.100 or 61.101, Physics 75.100 or 75.105;

5. **Mathematics:** Mathematics 69.102 and 69.112;

6. **Physics:** Physics 75.100, Chemistry 65.100, Mathematics 69.107★ and 69.117★, or Mathematics 69.102 and 69.112. If Mathematics 69.107★ and 69.117★ are taken, one of Biology 61.100 or 61.101, or Geology 67.100 is also required;

7. **Physical Geography:** Mathematics 69.107★ and 69.117★, Chemistry 65.100, Geology 67.100, and one of Biology 61.100 or 61.101, Physics 75.100, or both of Geography 45.210★, 45.211★. An arts or social science elective (may not be Geography 45.101 if Geography 45.210★, and 45.211★, are selected in above);

8. **Psychology:** Mathematics 69.107★ and 69.117★ or 69.127★, and two of Biology 61.100 or 61.101, Chemistry 65.100, Physics 75.100 or 75.105. Psychology 49.100 should be taken as the social science elective.

Courses Approved for A First Year Science Program

Science Courses

Biology

- 61.100 Current Concepts in Biology (see "Notes on Programs" p. 376)
- 61.101 Introductory Biology; or if one of these courses has been completed in Qualifying University year, one credit from:
- 61.200 Plant and Animal Form and Function
- 61.201★ Animals — Form and Function
- 61.202★ Plants — Form and Function
- 61.215 Genetics
- 61.220★ Cell Physiology
- 61.261★ Introduction to Ecology

Chemistry

- 65.010 Introductory Chemistry
- 65.100 General Chemistry; or if this course has been completed prior to First year, with permission:
- 65.210 Physical Chemistry
- 65.220 Organic Chemistry
- 65.222 Organic Chemistry
- 65.250 Inorganic and Analytical Chemistry

Geography

- 45.210★ The Physical Environment
- 45.211★ Geomorphology and Environmental Management

Geology

- 67.100 General Geology
- 67.103★ Principles of Geology

Note:

If Geology 67.100 has been completed in Qualifying University year, two of:

- 67.221★ Crystallography and Optical Mineralogy
- 67.222★ Mineralogy
- 67.228★ Petrology I

- 67.233★ Stratigraphy I
- 67.234★ Palaeontology I
- 67.281★ Field Geology I

Mathematics

- 69.106★ Pre-Calculus Mathematics
- 69.107★ Elementary Calculus
- 69.117★ Elementary Algebra
- 69.127★ Topics in Calculus and Algebra
- 69.102 Calculus
- 69.112 Algebra
- 69.207★ Elementary Calculus II
- 69.217★ Linear Algebra
- 69.257★ Introduction to Statistics
or any mathematics course for which the
student has the prerequisite.

Physics

- 75.010 Pre-University Physics
- 75.100 Introductory Physics
- 75.105 Introductory Physics for Non-Majors; or if
one of 75.100 or 75.105 has been completed
prior to First year, with permission, any two
of:
- 75.211★ Mechanics and Properties of Matter
- 75.222★ Wave Motion and Optics
- 75.235★ Electricity and Magnetism
- 75.236★ Physics of Electrical and Electronic
Measurements I

Arts and Social Science Courses

Any course available to a First-year arts or social sciences student with the exception of:

- (a) Accounting 41.100, 41.101★ or 41.102★;
- (b) Geography 45.210★;
- (c) any computer science course;
- (d) any course offered by the departments in the Faculty of Science. Advanced courses in certain disciplines may be included if the prerequisite has been completed prior to First year; and
- (e) any engineering course

Courses for Subsequent Years

Major Program

Candidates will ordinarily take at least ten courses beyond the completion of First year:

- (a) at least four more courses in the Major subject;
- (b) at least two science courses above the First-year level in a department or departments other than the Major department;
- (c) sufficient electives to meet the program requirement of two arts or social science electives and one free option.

The program of each student is under the direct supervision of a full-time member of the department in

which the student takes his or her Major. In several departments most of the more advanced courses will be given, in whole or in part, during the day only. Candidates are advised to consult their Major departments as early as possible to arrange their programs.

Candidates wishing to change their Major field of study may do so only with the approval of both departments concerned.

Integrated Science Studies Program

For course requirements see p. 398.

Honours Program

Students for a degree with Honours will ordinarily take at least 15 courses beyond the completion of First year. (See note p. 364 regarding transfers to the Faculty of Science from other institutions or faculties.) With the permission of the department or committee concerned, it is possible for a candidate of exceptional ability to complete an Honours program in certain fields in three years from Senior Matriculation by taking six courses in each Winter session and one in each of the Summers.

The course patterns for each Honours program are detailed individually and requirements lie within the discretion of the appropriate department or committee. The student should therefore read the appropriate calendar instructions and consult the chairman of the appropriate department or committee. Capacities for Honours students will depend on departmental resources and the nature of the program.

Regulations governing honours essays, theses or special projects are detailed in the departmental sections of this calendar.

A student who fails to maintain Honours standing may not remain in Honours, and must discuss a new program with the chairman of the department.

Science Continuation Courses

1. All courses offered in the Faculty of Science beyond First year except Geology 67.202★, Geology 67.204★ and Geology 67.383★.

2. All courses offered in computer science except 95.101★. A maximum of two half courses at the 100 level (excluding 95.101★ completely) in Computer Science may be used as Science Continuation course credits.

Technology, Society, Environment (TSE) 59.300, 59.401★, 59.402★. (Biology Major and Honours students may use these courses only as free options.)

Geography 45.201★, 45.210★, 45.211★, 45.299★, 45.303★, 45.308, 45.311★, 45.312★, 45.325, 45.345★, 45.400★, 45.402★, 45.404★, 45.405★, 45.411★, 45.412★, 45.414★, 45.415★, 45.418★, 45.424★.

Psychology 49.200★, 49.201★, 49.204★, 49.205★, 49.220★, 49.221★, 49.222★, 49.251★, 49.252★, 49.255★, 49.270★, 49.305, 49.321★, 49.325, 49.327★, 49.330★, 49.331★, 49.355★, 49.356★, 49.375★, 49.376★, 49.380★.

3. All courses offered in the Bachelor of Engineering program beyond First year, subject to the approval of the Faculty of Engineering.

Notes:

1. Computer Science 95.101★ is not acceptable for credit in the Science Faculty.

2. The following courses are acceptable only as free options for science students: Biology 61.190, Biology 61.216★, Biology 61.262★, Biology 61.393★, Chemistry 65.107, Geology 67.111★, Geology 67.112★, Geology 67.202★, Geology 67.204★, Mathematics 69.141★, Mathematics 69.142★, Physics 75.190, Physics 75.195, Science 60.100.

3. All science continuation courses taken outside the Major department must be approved by the student's Major department or committee.

4. Courses counted in the science sequence of the Integrated Science Studies Program will be determined and approved by the Integrated Science Studies Committee.

5. Biology Major and Honours students should refer to *Notes on Programs* (p. 376) for special science continuation course provisions which apply to them.

Social Science Courses not Acceptable as Social Science Electives

Accounting

All courses

Economics

43.220, 43.404★, 43.405★.

Geography

45.201★, 45.210★, 45.211★, 45.299★, 45.303★, 45.308, 45.311★, 45.312★, 45.325, 45.345★, 45.400★, 45.402★, 45.404★, 45.405★, 45.411★ (Geology 67.415★), 45.412★, 45.414★, 45.415★, 45.418★, 45.424★, (Engineering 82.424★, Geology 67.417★).

Psychology

49.200★, 49.201★, 49.204★, 49.205★, 49.220★, 49.221★, 49.222★, 49.251★, 49.252★, 49.255★, 49.270★, 49.305, 49.321★, 49.325, 49.327★, 49.330★, 49.331★, 49.355★, 49.356★, 49.375★, 49.376★, 49.380★.

Sociology

53.370.

Academic Standing

Grading System

Standing in courses will be determined by departments and will be shown by alphabetical grades.

The grades used, with their corresponding grade points, are as follows:

A+	12	B+	9
A	11	B	8
A-	10	B-	7
C+	6	D+	3
C	5	D	2
C-	4	D-	1

Standings to represent special circumstances are as follows:

Aeg

Pass standing granted although absent from final examinations. Aegrotat standing is granted only by the Science Committee on Admission and Studies in response to a student's application which meets the stipulations for examinations.

F

Failure. No academic credit.

FNS

Failure, but with supplemental privileges withdrawn because of incomplete term work or an unacceptably low mark in the examination. No academic credit.

Wdn

Withdrawn in good standing. No academic credit.

Abs

Failure due to absence from the final examination where the necessary term work has been completed. No supplemental privileges. No academic credit.

Def

Students who are absent from final examinations or who are unable to complete their course work for medical or compassionate reasons may apply to the Science Committee on Admission and Studies for deferred examination privileges.

IP

In Progress

Course Load

The normal course load for a full-time student in the Faculty of Science, during the Winter session, is the equivalent of five full courses. The normal course load for a part-time student, in the Winter session, is the equivalent of two full courses.

Students may register for a maximum of two courses in the Summer session, i.e. two Evening courses, or one Evening and one Day course, or two Day courses.

A student may exceed the normal course load in the Winter session only with the Registrar's permission, which may be granted if a C average is maintained overall and in the Major field, and if recommended by the Major department. Part-time students may be granted permission if a C average is obtained in a minimum of two courses in the previous session.

Promotion and Failure

Full-time Students

Full-time students in First-year science, in order not to fail their year in May, must, by then, have passed at least three full courses or equivalent.

To be promoted to the credit system from First year, a full-time science student must have passed at least four courses, including at least one full course or equivalent in mathematics, and at least one full course or equivalent in each of two different experimental sciences. Students who have declared a Major or Honours in a mathematics program may replace one of these experimental sciences with a credit in computer science. In addition, students must obtain grades of C- or better in at least two full courses or equivalent, including at least one full course or equivalent in their intended Major.

For a student without advanced standing in any First-year courses, these four courses must be selected from those approved for a First-year Science program.

For a student (not repeating First year) with advanced standing in some First-year courses, these four courses must include sufficient courses to complete the First-year Science program; the remainder of the four courses may include courses beyond the First year provided the student has retained credit for the prerequisite First-year courses. In the Major program one of the grades of C- or better must be in the intended Major subject. In the Integrated Science Studies program, the student must have attained a grade of C- or better in one course from each of the science and non-science sequences.

This must be accomplished in one calendar year with not more than two Summer courses, supplemental or grade-raising examinations. The course work of those First-year science students who almost meet promotion requirements is reviewed by the Dean's Committee on Promotion.

A full-time student who does not meet the requirements of promotion by the end of August examinations will have failed First year.

Part-time Students

To be promoted to the credit system from First year, part-time students must, in the first six final examinations, have passed at least four courses approved for a

First-year Science program including at least one full course or equivalent in mathematics, and at least one full course or equivalent in each of two different experimental sciences, and attained a grade of C- or better in at least two of these courses.

In the Major program one of the grades of C- or better must be in the intended Major subject. In the Integrated Science Studies program, the student must have obtained a grade of C- or better in one course from each of the science and non-science sequences.

All Degree Students

Failed students may repeat First year without encumbrances, retaining credit toward their degree (but not toward the completion of First year) for all courses graded C- or better.

A student repeating First year may register only in courses approved for a First-year Science program, but may include two courses beyond the First year provided the student has retained credit for the prerequisite First year course.

Students repeating First year in the Faculty of Science may have retained credit for Mathematics 69.107★ and/or 69.117★ (or equivalent) from their first attempt at First year. If these students do not require any mathematics above the 100 level in their current major or honours program, they may replace the mathematics requirement in their repeated First-year program for which credit has been retained by a course or courses in Computer Science or a third experimental science course (to make a total of three different experimental science courses).

A student who fails First year a second time may not re-enter a degree program in the Faculty of Science.

After promotion to the credit system the student will accumulate course credits under a pattern approved by the appropriate department or committee.

Supplemental Examination Privileges

First year full-time students may write two supplemental or grade-raising examinations provided that success in these examinations will complete the First year program.

First year part-time students may write two supplemental or grade-raising examinations in the first four courses of their program credited towards the degree.

Major degree students have the privilege of writing supplemental or grade-raising examinations, or repeating or replacing courses, subject to the following restriction: After admission to the credit system the ratio of total number of (full course equivalent) examinations to the total number of credits required may not exceed three to two. In particular, a student who requires ten more credits has the equivalent of at most fifteen full-course examinations available to complete his or her program.

Honours degree students have the privilege of writing supplemental or grade-raising examinations, or repeating or replacing courses subject to the following restriction: After admission to the credit system, the ratio of total number of (full course equivalent) examinations to the total number of credits required may not exceed six to five. In particular, a student who requires fifteen more credits has the equivalent of at most eighteen full course examinations available to complete the program.

The number of examinations available to a student who transfers from another institution or from another program, will be determined on a *pro rata* basis and will be specified at the time of admission.

When a student is examined in a course which previously has been declared extra to the degree program, this examination does not affect the remaining number of available examinations.

Students who cannot complete their program without exceeding the available number of examinations lose their undergraduate status in the Faculty of Science.

Graduation

General Regulations

1. Every student will be required to complete at least the last five courses at Carleton;
2. A student who takes courses elsewhere with a letter of permission from the Science Committee on Admission and Studies may, with the approval of the appropriate department or committee, use the credit value but not the grades to meet graduation requirements;
3. Students who transfer to the Faculty of Science from another institution must include in the courses presented for degree (whether obtained at Carleton or elsewhere) at least:
 - (a) two arts or social science electives if on transfer they received credit for less than ten courses (or equivalent);
 - (b) one arts or social science elective if on transfer they received credit for ten or more courses.

Major Degree Students

To qualify for graduation a student must:

1. present credits for fifteen approved full courses (or equivalent) beyond Qualifying University year with not more than two courses below the 100 level and not more than seven below the 200 level;
2. have a grade of C- or better in at least half of the fifteen credits;
3. have an average of C- or better in the courses in his or her Major subject or subjects;
4. after entry to the credit system have completed the program with not more than three (full course equivalent) examinations for every two credits required.

(Examinations include supplemental and grade-raising examinations, course repetitions and replacements.) A part-time student or a full-time student who has interrupted his or her studies must complete the program within seven years after entry to courses beyond First year;

5. include at least two courses in the Major subject or subjects in the last five courses taken for credit;
6. be recommended by the Major department(s) and the Science Faculty Board (see general regulation 3).

To meet the requirements for the C- average in the Major stated above, only those courses in the Major necessary to make up the required total for graduation in the Major department need be counted. All obligatory courses must be counted.

A graduating student in a Major program of the Faculty of Science will be designated as graduating "with distinction" if:

1. he or she has successfully completed the fifteen courses required for the degree without a course failure, supplemental examination, course repetition or replacement;
2. The ten courses taken beyond the First year requirements:
 - (a) were approved by the candidate's department and faculty and were completed while he or she was a registered student of Carleton University;
 - (b) were graded by Carleton University either directly or by acceptance and translation of the grade from another academic institution (at least five of these courses must be taken at Carleton University);
 - (c) were graded under the Carleton University system and the grade point total was at least 90 grade points.

Integrated Science Studies Degree Students

See p. 398.

Honours Degree Students

To qualify for graduation with a Bachelor of Science degree with Honours a student must:

1. present credits for at least twenty approved full courses (or equivalent) beyond Qualifying University year with not more than two courses below the 100 level and not more than seven below the 200 level;
2. meet the requirements of the Faculty of Science and of the appropriate department or committee both with respect to course and grade requirements;
3. after entry to the credit system, have completed the program with not more than six (full course equivalent) examinations for every five credits required. (Examinations include supplemental and grade-raising examinations, course repetitions and replacements.) A part-time student or a full-time student who has interrupted his or her studies must complete the program within seven years after entry to courses beyond First year;

4. include at least two courses in the Honours subject or subjects in the last five courses taken;

5. be recommended by the appropriate department or committee and the Science Faculty Board.

The Honours degree will not be awarded to students taking less than the equivalent of five full courses for credit at Carleton.

Designations of Honours Degrees

Three designations of Honours are awarded, determined on the basis of the grade-point average as follows:

Highest Honours

10.0 — 12.0 in Honours subject, and
8.0 or better overall

High Honours

9.0 or better in Honours subject, and
7.0 or better overall

Honours

6.5 or better in Honours subject, and
5.0 or better overall

Departments may recommend the higher designation of Honours degree in the case of a student one of whose indices is in the appropriate higher range and the other within 0.2 grade points of the higher range.

To determine the class of degree for students with Combined Honours, the average is taken in each of the two subjects and the simple average of the two is used. If agreeable to the committee concerned, the final average may be computed on the basis of the weighted average of the required number of Honours courses in the two subjects.

Departments may use discretion for establishing the class of degree in counting the number of Honours courses where students have more than the minimum number of courses.

Students admitted to an Honours program prior to September, 1980, may have the following designations of classes of Honours shown on their degrees and determined on the basis of the grade-point average indicated:

First Class

9.0 — 12.0 in Honours subject, and
7.0 or better overall

High Second Class

8.0 or better in Honours subject, and
6.0 or better overall

Second Class

6.0 or better in Honours subject, and
4.0 or better overall

Students admitted to an Honours program prior to March, 1977, may have the following designations of classes of Honours shown on their degrees and determined on the basis of the grade-point average indicated:

First Class

9.0 — 12.0 in Honours subject, and
6.0 or better overall

High Second Class

8.0 or better in Honours subject, and
5.0 or better overall

Second Class

6.0 or better in Honours subject, and
4.0 or better overall

In addition, students admitted to an Honours program prior to September, 1977, may be awarded an Honours degree with *Third Class* Honours based on a grade-point average of 4.0 or better in the Honours subject and 3.6 or better overall.

Academic Clubs and Societies

The following clubs and societies operating on the campus serve to broaden and enrich the curriculum, and to offer students social activity and friendship related to their intellectual interests. The societies listed here are particularly pertinent for students registered in the Faculty of Science.

The Biological Society sponsors academic and social events, promotes informal contact between students and faculty, and helps acquaint students with ongoing biological research. Faculty adviser: Dr. M.B. Fenton.

The Chemical Institute of Canada, through its Carleton University Student Chapter, is active in sponsoring a number of professional and social activities throughout the year.

The Geology Society sponsors lectures on geological topics, and organizes field trips and social events for all undergraduate students with an interest in Geology.

MATHSOC, the Carleton University Mathematics Society, features "Naive-Level Seminars" designed by and for mathematics undergraduates. The society office promotes contact between students at different stages in their studies. Faculty co-ordinator: John Poland.

Carleton's *High School Mathematics Club* organizes a weekly evening meeting of films, lectures, workshops and problem sessions for local high school students seriously interested in mathematics. Faculty co-ordinator: John Poland.

The *Physics Society* sponsors visits to government and industrial laboratories in the Ottawa area, arranges special lectures on physics topics and social events for those interested in physics.

Science Courses without Prerequisites and Recommended to Students in Other Faculties

Biology

- 61.101 Introductory Biology
- 61.190 Biology and Man
- 61.216★ Human Genetics and Evolution
- 61.393★ Biology and Development of Renewable Resources

Chemistry

- 65.010 Introductory Chemistry
- 65.107 The Chemistry of Art and Artifacts

Geology

- 67.100 General Geology
- 67.111★ Geology, the Environment and Man I
- 67.204★ Earth, Resources and Society

Mathematics

- 69.141★ Gambling I

Physics

- 75.010 Pre-University Physics
- 75.190 Introduction to Astronomy
- 75.195 Physics of Music

Science

- 80.100 Man in His Environment

Institute of Biochemistry

Officers of Instruction

Director

J.M. Neelin

Professors

J.M. Neelin

C.S. Tsai

H. Yamazaki

Associate Professor

K.B. Storey

Members of the Institute

Members

J.W. ApSimon (*Chemistry*)

D.R. Gardner (*Biology*)

B. Hollebone (*Chemistry*)

K.W. Joy (*Biology*)

J.M. Neelin (*Biology*)

J. Sinclair (*Biology*)

K.B. Storey (*Biochemistry and Biology*)

C.S. Tsai (*Chemistry*)

D.C. Wigfield (*Chemistry*)

H. Yamazaki (*Biology*)

Associate Members

S.A. Narang (*Adjunct Professor of Chemistry*)

H. Robertson (*Adjunct Professor of Biology*)

V.L. Seligy (*Adjunct Professor of Biology*)

I.C.P. Smith (*Adjunct Professor of Chemistry*)

Honours Program

The Institute of Biochemistry offers a four-year program leading to an Honours B.Sc. in biochemistry, intended to provide a broad basic training for students planning a career in a biochemical field. Several courses in biology and chemistry (and resources from these departments) are integrated into the program to provide the background in these disciplines that is fundamental to an understanding of the biochemistry of animals, microorganisms and plants.

Students entering the program must satisfy the general requirements for B.Sc. Honours (p. 364). The following twenty credits are required, taken in a pattern approved by the Director of the institute:

1. Biology 61.100 or 61.101, 61.215, 61.325★, 61.335★ and one credit from 61.330★, 61.417, 61.423, 61.424, 61.425, 61.426★, 61.427★, 61.428★, 61.429★ or 61.435;
2. Chemistry 65.100, 65.210, 65.220, 65.320, 65.325★;
3. (a) Either Biochemistry 63.300 or 63.310 and 63.305★;

(b) Biochemistry 63.401★, 63.402★, 63.403★ and 63.498.

4. Physics 75.100, Mathematics 69.107★, 69.117★ and either 69.202 or 69.207★ plus one-half credit chosen from 69.208★, 69.217★ or 69.257★;

5. Two approved arts or social science courses;

6. Two and one-half free options. Some recommended courses include: Biochemistry 63.404★, Biology 61.321★, 61.330★, 61.351★, 61.417, 61.423, 61.424, 61.425, 61.426★, 61.427★, 61.428★, 61.429★, 61.435, 61.455, Chemistry 65.250, 65.310 or 65.311★, 65.350, 65.420★, 65.422★, 65.423★, Physics 75.235★, 75.236★, Mathematics 69.208★, 69.217★, 69.257★ or 69.250, Computer Science 95.103★.

Notes:

1. For the purposes of calculation, the "Honours subjects" include all biochemistry courses, plus the biology and chemistry courses listed in items 1 and 2 above.

2. Physics 75.105 may be accepted in place of Physics 75.100 with the approval of the Director.

3. In choosing a program, students should consider the prerequisites required for any courses that they wish to take in later years.

4. Credit will not be given for Biology 61.220★ taken after Biochemistry 63.300 or equivalent.

Graduate Program

No graduate program is offered by the institute but the graduate offerings of the Departments of Biology and Chemistry include projects and courses which may be appropriate for students with an interest in biochemistry. Details are found in the Graduate Studies and Research Calendar.

Courses Offered

Biochemistry 63.305★

Practical Biochemistry

A laboratory course introducing the basics of experimental biochemistry and illustrating the theory and concepts dealt with in Biochemistry 63.310.

Precludes credit for Biochemistry 63.300 (no longer offered).

Prerequisites: Chemistry 65.220 or 65.222; Chemistry 65.210 or Biology 61.220★. Biochemistry 63.310 or equivalent is recommended as a corequisite.

Day division: Four hours a week plus biweekly assignments.

Biochemistry 63.310

General Biochemistry

Chemistry and metabolism of proteins, lipids, carbohydrates and nucleic acids. Mechanism of action of enzymes. Metabolic control mechanisms and interrelations. Biological oxidation. Biosynthesis of structural, storage and informational compounds.

Precludes additional credit for Biochemistry 63.300 (no longer offered).

Prerequisites: Chemistry 65.220 or 65.222; Chemistry 65.210 or Biology 61.220★.

Day division: Three lectures a week.

J. Neelin, K.B. Storey

Biochemistry 63.401★

Methods in Biochemistry

The course deals with the principles and applications of modern biochemical methodology, including use of radioisotope tracers, ultracentrifugation, electrophoresis and ion-exchange chromatography.

Prerequisite: Biochemistry 63.300.

Day division, First term: Lectures and discussion two hours, laboratory six hours a week.

H. Yamazaki

Biochemistry 63.402★

Biomacromolecules

Biochemistry of polysaccharides, proteins and nucleic acids. Discussion of experimental approaches to purification and conformational studies of biomacromolecules, their interaction in solutions, function and regulation of enzymes. Workshop sessions include discussion of experimental design and interpretation, and solving of related numerical problems.

Prerequisite: Biochemistry 63.300.

Day division, Second term: Lectures two hours, tutorial two hours a week.

Biochemistry 63.403★

Metabolic Regulation

The course includes discussion of topics concerned with the regulation of intermediary metabolism.

Prerequisite: Biochemistry 63.300.

Day division, First term: Lectures three hours, workshop two hours a week.

K.B. Storey

Biochemistry 63.404★

Industrial Biochemistry

A course illustrating the application of biochemistry to the production of biological compounds useful in nutrition, medicine, and the food and chemical industries. The course also reviews the general strategies for efficient production of these compounds by controlling the activities of living cells or enzymes.

Prerequisites: Biochemistry 63.300 or permission of the institute.

Day division, Second term: Lectures three hours a week.

H. Yamazaki

Biochemistry 63.491★

Selected Topics in Biochemistry

Selected topics of current interest in biochemistry are offered upon approval by the director in consultation with members of the institute.

Day division.

Biochemistry 63.498

Research Project

Students carry out a research project in either the biology or chemistry departments, under the supervision of a faculty member. A report must be submitted to the supervisor by the last day of classes, and will be examined by a committee. Extension to the deadline will be allowed only with the permission of the institute under exceptional circumstances.

Day division: Laboratory and associated work average at least eight hours a week.

Department of Biology

Officers of Instruction

Chairman

H.G. Merriam

Associate Chairman (Undergraduate Studies)

D.R. Gardner

Associate Chairman (Graduate Studies)

K.W. Joy

Professor Emeritus

H.H.J. Nesbitt

Professors

C.A. Barlow

W.E. Beckel

M.B. Fenton

H.F. Howden

V.N. Iyer

K.W. Joy

P.E. Lee

M.E. McCully

J.M. Neelin

G. Setterfield

J.A. Webb

F. Wightman

H. Yamazaki

Associate Professors

I.L. Bayly

T.W. Betz

G.R. Carmody

D.R. Gardner

W.I. Illman

S.L. Jacobson

J.D.H. Lambert

H.G. Merriam

S.B. Peck

J. Sinclair

D.A. Smith

K.B. Storey

NSERC Research Fellows

R.J. Ireland

R.W. Seagull

P.J. Weatherhead

Instructors

Roslyn Grey

Ann Hutton

Adjunct Professors

W.A. Keller (*Agriculture Canada*)

L. Lefkovitch (*Agriculture Canada*)

E.E. Lindquist (*Agriculture Canada*)

D.E. McAllister (*National Museums of Canada*)

H. Robertson (*Agriculture Canada*)

V.L. Seligy (*National Research Council*)

D.M. Wood (*Agriculture Canada*)

Curator of Cryptogamic Botany, W.I. Illman

Curator of Greenhouses, H. Datema

Curator of Herbarium, I.L. Bayly

Curator of Zoology Museum, D.A. Smith

General Information

Students intending to Major in biology are strongly advised to acquire a good background in chemistry and physics as well as mathematics at the Grade 13 or equivalent level.

Undergraduate Programs

The Department of Biology offers both Honours and Majors programs leading to either a B.Sc. or a B.A. in biology. Students enrolled in any of these programs must arrange their courses in consultation with the Chairman or Associate Chairman (Undergraduate Studies) of the department, in one of the patterns outlined below. None of the courses in the Department of Biology are offered by means of Challenge for Credit.

Major Programs

Bachelor of Science in Biology

The Bachelor of Science program in biology recognizes the strong dependence of most modern biology on the physical sciences and mathematics. It treats biology as a unified subject based on common principles and qualities expressed in diverse ways by different organisms. The Major program is not primarily regarded as professional preparation by itself, but its aim is to provide a strong base in concepts and basic facts which should be adaptable to changing demands and needs in modern society. Students enrolled for a Bachelor of Science degree with a Major in biology must satisfy the general requirements for science stated on pp. 363-370 and take the following fifteen courses in a pattern approved by the chairman:

1. Six biology courses to include 61.100† or 61.101†, 61.201★, 61.202★, 61.215, 61.220★, 61.261★, 61.325★, 61.335★, 61.361★;

2. Chemistry 65.100, Physics 75.100†, Mathematics 69.107★ and one of 69.117★ or 69.127★ or equivalent†;

3. Two additional science courses above the 100 level and not in biology†;

4. One additional science course†;

5. Two approved courses offered by the Faculties of either Arts or Social Sciences.

6. One free option.

†See Notes on Programs, p. 376.

Bachelor of Arts in Biology

Students enrolled for a Bachelor of Arts degree with a Major in biology must satisfy the general requirements of the Faculty of Social Sciences stated on pp. 89-99 and must maintain at least a C- average in biology courses. The student will follow one of the programs described on p. 108. In either case the approval of the Chairman or Associate Chairman of the Department of Biology is required. For the Combined programs, the student should also consult with the department of the other subject.

Honours Programs

Honours Bachelor of Science in Biology

The Honours program in biology is primarily intended for students planning a professional career in research, teaching or administration in biology, or in one of the fields of applied biology, such as the health sciences, agriculture or environmental science. An Honours degree is usually essential for admission to graduate studies. Students planning such a career are strongly advised to enter the Honours program as early as possible, certainly by the end of the Second year. Students enrolled for the Honours B.Sc. degree in biology must satisfy the general requirements for Honours stated on pp. 364-370 and take the following twenty courses in a pattern approved by the Chairman or Associate Chairman. (This allows specialization in such biological subdivisions as ecology, behaviour, cell and molecular biology, genetics, plant or animal physiology and development, systematics.):

1. Seven biology courses to include 61.100† or 61.101†, 61.201★, 61.202★, 61.215, 61.220★, 61.261★, 61.325★, 61.335★, 61.361★, 61.498;
2. Chemistry 65.100, Physics 75.100†, Mathematics 69.107★ and one of 69.117★ or 69.127★, or equivalent†;
3. Two additional science courses above the 100 level and not in biology†;
4. Four advanced science courses, selected in consultation with a faculty member working in the area of specialization chosen by the student;
5. One additional course, chosen in consultation, related to the student's area of specialization;
6. Two approved courses offered by the Faculties of either Arts or Social Sciences;
7. One free option.

†See *Notes on Programs*, p. 376.

Fourth-year students are strongly urged to attend the departmental research seminars.

Selection of Fourth-year courses can introduce into the student's program a certain amount of specialization. Possible areas of specialization include molecular, cellular and developmental biology, plant and

animal physiology, ecology, and systematics. Courses should be chosen in consultation with the chairman or a faculty member working in an area close to the interest of the student. This consultation should preferably begin before entering the Third year, to ensure that courses which may be given only in alternate years are taken in the correct sequence. In any case, students must consult with the Chairman or Associate Chairman before registering in the Fourth year.

Combined Honours in Biology and Physical Geography

Students desiring a comprehensive basic education in both biology and physical geography may apply to a Combined Honours B.Sc. program. Applicants must satisfy entry requirements of the Honours B.Sc. program.

Course requirements are as follows:

1. Biology 61.100† (or 61.101†), Mathematics 69.107★ and 69.117★ (or 69.127★), Chemistry 65.100 and one of Geology 67.100 or Physics 75.100 or 75.105. Physics must be taken in this program or Grade 13 Physics must be presented as an entrance credit.
2. Two optional credits that are acceptable courses offered by the Faculties of Arts or Social Sciences. A credit from Geography courses *not* listed on page 388, such as Geography 45.101, is recommended.
3. One additional science credit from the list on pp. 365-366 (Geology 67.100 or Physics 75.100 or 75.105 are recommended).
4. One free option credit.
5. Ten credits in biology (or biochemistry) and physical geography (see courses listed on p. 388. beyond First-year level, including at least one half credit involving a field course. Not more than six credits in this group should be taken in one department and not more than six may be at the 200 level.
6. One additional credit in science or computer science above the 100 level, not in biology or geography and chosen in consultation with the student's program adviser.
7. Biology 61.498 or Geography 45.496.

Combined Honours in Biology and Geology

Students desiring a comprehensive basic training in both biology and geology may apply for admission to a Combined Honours program, on completion of the First year of the Science program. Applicants must be of Honours standing and must have achieved grades of C+ or better in both Biology 61.100 or 61.101 (or 61.201★ and 61.202★)† and Geology 67.100.

Course requirements of the Combined Honours program are as follows:

1. Biology 61.100† or 61.101†, Geology 67.100, Mathematics 69.107★ and 69.117★ (or 69.127★). One

of Chemistry 65.100, Physics 75.100 or 75.105. (The omitted subject, i.e. chemistry or physics, must have been taken at the Grade 13 level).

2. Ten courses in biology (or biochemistry) and geology beyond First-year level, including at least one course involving a field camp. Not more than six courses in this group should be taken in one department and not more than six may be at the 200 level.

3. Biology 61.498 or Geology 67.498.

4. One half-course in statistics. (Mathematics 69.257★ is recommended) and one half-course in computer science. (Computer Science 95.103★ is recommended.)

5. Three optional courses, at least two of which must be acceptable courses offered by the Faculties of either Arts or Social Sciences.

6. A language requirement must be met during the Third year by passing a course in, or demonstrating reading proficiency in one of French, German, Russian, Spanish, Italian, Greek, or any language acceptable to the committee and in which suitable arrangements can be made for the examination.

Honours Bachelor of Arts in Biology

Students enrolled for the Honours Bachelor of Arts degree must satisfy the general requirements of the Faculties of Arts and Social Sciences stated on pp. 96-98 and must maintain at least C+ average in biology courses and a C- average overall. The student will follow either the Honours program or the Combined Honours program described on p. 108. In either case, the approval of the Chairman or the Associate Chairman of the Department of Biology is required. For the Combined Honours program, the student should also consult the other Major department.

†Notes on Programs

(See items marked † in programs on pp. 108, 374, 375).

Students who have completed Grade 13 Biology before entry to First year may take Biology 61.100. In special cases a student entering First year may be able to proceed directly into 200-level courses. Students who have achieved a mark of at least 80% in Grade 13 Biology may apply to take a placement test during registration week. The test will be designed to demonstrate an adequate comprehension of the principles of cell biology, genetics, plant and animal science, ecology, and evolution. All other students must take Biology 61.101.

It is important to take Biology 61.220★ in Second year; it is a critical prerequisite for other courses.

Students who do not meet the prerequisites or co-requisites for Physics 75.100 may substitute Physics 75.105 in its place, but it should be noted that Physics 75.100 is preferred as preparation for Biology 61.351★, 61.335★ and 61.435.

Mathematics 69.107★ plus 69.117★ equal former 69.100; 69.107★ plus 69.127★ equal former 69.101;

students who must take Mathematics 69.106★ may use it as a free option or 100-level science option.

In choosing additional science courses above the 100 level and not in biology, students may select from the science continuation courses listed on pp. 366-367. In their selections, recent biology students have favoured Biochemistry 63.300, 63.401★, 63.402★, 63.403★; Chemistry 65.210, 65.222, 65.320; Geology 67.233★, 67.234★; Mathematics 69.250, 69.257★; Computer Science 95.103★; Geography 45.210, 45.308, 45.345; Psychology 49.220★, 49.221★, 49.270★. In addition, Chemistry 65.371★, Mathematics 69.207★, 69.208★, Physics 75.230, 75.291★, 75.292★ are suggested for some students. Biology Major and Honours students (except students in the B.A., B.A. Combined Major, B.A. Honours and B.A. Combined Honours programs) may use Technology, Society, Environment 59.300, 59.401★ or 59.402★ in fulfilling the degree requirements, but only as a free option.

Graduate Program

The Department of Biology offers programs of study and research leading to M.Sc. and Ph.D. degrees in molecular, cellular and developmental biology, plant and animal physiology, ecology and systematics. Details will be found in the Graduate Studies and Research Calendar.

Courses Offered

Biology 61.100†

Current Concepts in Biology

A lecture and laboratory course exploring in detail some of the current views and recent developments in various branches of biological science. A range of life processes and organisms is considered, illustrating fundamental concepts at the molecular, cellular, organism, and population levels of organization. Both lectures and laboratories will assume that the student already has sound background experience in biology. Precludes additional credits for Biology 61.101, 61.190.

Prerequisite: Ontario Grade 13 Biology or equivalent. Day division: Lectures three hours a week, laboratory (including projects) three hours a week.

†See *Notes on programs* p. 376.

I.L. Bayly, S. Jacobson, K.W. Joy, D.A. Smith

Biology 61.101†

Introductory Biology

A lecture and laboratory course for students who have little or no background in biology. The course provides an introduction to principles of biological science and includes various aspects of cell biology, metabolism, and genetics, and the evolution, structure, function and ecology of living organisms. The laboratory is similar to that in Biology 61.100. This

course is designed for students who have not completed Grade 13 Biology or equivalent. Precludes additional credits for Biology 61.100, 61.190.

Day division: Lectures three hours a week, laboratory (including projects) three hours a week.

S.B. Peck, J. Sinclair

Biology 61.190

Biology and Man

A course for non-science Majors covering major biological concepts which bear directly on human culture, experience and the quality of life. Typically, topics are drawn from areas such as heredity, growth and reproduction, nutrition, evolution and ecology. Precludes additional credits for Biology 61.100, 61.101.

Not a science credit for B.Sc. biology Majors.

Day division: Lectures and seminars three hours a week.

M.B. Fenton, J. Sinclair

Biology 61.200

Plant and Animal Form and Function

The course content is identical to that of Biology 61.201★ and 61.202★ combined, but is graded as a full-credit course. It allows students to choose the topic of certain term-work assignments from any topic area included in the full course.

Precludes additional credit for Biology 61.201★ or 61.202★

Biology 61.201★

Animals: Form and Function

An investigation of invertebrates and vertebrates to relate their structure, function, behaviour and interactions with plants.

Precludes additional credit for Biology 61.200.

Prerequisite: Biology 61.100 (or Biology 61.101).

Day division, First term: Lectures three hours a week, laboratory three hours a week.

M.B. Fenton

Biology 61.202★

Plants: Form and Function

An introduction to the structure and development of higher plants (at molecular, cellular and organism levels) discussed in relation to their function.

Precludes additional credit for Biology 61.200.

Prerequisite: Biology 61.100 (or Biology 61.101).

Day division, Second term: Lectures three hours a week, laboratory three hours a week.

M.E. McCully

Biology 61.215

Genetics

A lecture and laboratory course on the mechanisms of inheritance and the nature of gene structure, composition and function.

Precludes additional credit for Biology 61.216★.

Prerequisite: Biology 61.100 or 61.101.

Day division: Lectures three hours a week, laboratory four hours a week.

V.N. Iyer

Biology 61.216★

Human Genetics and Evolution

A course designed for non-science Majors which develops the central concepts of genetics and evolution, using, wherever possible, examples drawn from studies of humans. Topics covered include: human reproduction and cell division; chromosomes; autosomal inheritance; sex and sex-linked inheritance; molecular basis of genes and gene function; mutation; genetic diseases; genetic engineering; genes, environment and behaviour; genes in populations; mechanisms of evolution; race; human evolution.

Precludes additional credit for Biology 61.215. Available to science students and B.A. biology Major and Honours students only as a free option.

Prerequisite: A general biology course at the Grade 13 level or above or Psychology 49.100.

Day division, Second term: Lectures three hours a week; workshops, tutorials and seminars, two hours a week.

G. Setterfield

Biology 61.220★

Cell Physiology

The cell concept and the basic processes fundamental to life at the cellular level.

Prerequisites: Biology 61.100 or 61.101 and Chemistry 65.100. Note: This course is a prerequisite for 61.321★, 61.325★, 61.330★, 61.335★, and 61.351★.

Day division, First term: Lectures three hours a week, tutorial or laboratory four hours a week.

J.A. Webb

Biology 61.261★

Introduction to Ecology

An introduction to major concepts in ecology, their scientific basis, and their implications for biology and human existence.

Day division, First term: Lectures or tutorials three hours a week; laboratory four hours a week.

Prerequisites: Biology 61.100 or 61.101.

H.G. Merriam

Biology 61.262★

Ecology in Architecture

A course stressing ecological principles relevant to the practice of architecture, the relationship of the environment to architectural problems and the unity of the ecosystem with respect to the human condition. Students registered in a biology program may not take this course for credit.

Lectures two hours a week, field trips or discussion groups four hours a week.

I.L. Bayly

Biology 61.305★

Invertebrate Zoology

A course devoted to the study of invertebrate structure, physiology, ecology and behaviour.

Prerequisite: Biology 61.201★. Note: This course is a prerequisite for 61.405.

Day division, First term: Lectures two hours a week, laboratory four hours a week.

C.A. Barlow

Biology 61.309★

Morphology of Lower Plants

The morphology, reproduction and evolution of lower plants.

Prerequisite: Biology 61.202★.

Not offered 1982-83.

Biology 61.311★

Mycology

The morphology, evolution and biological importance of the fungi.

Prerequisite: Biology 61.202★.

Day division, Second term: Lectures two hours a week, laboratory four hours a week.

W.I. Illman

Biology 61.312★

Phycology

An advanced half course dealing with the occurrence, ecological role, morphology, reproduction and evolution of the algae.

Prerequisite: Biology 61.202★.

Day division, First term: Lectures two hours a week, laboratory four hours a week.

M.A. Hutton

Biology 61.321★

Cytology

The structure, composition, function and development of the major systems of cells and their organelles.

Prerequisite: Biology 61.220★ or Biochemistry 63.300; the latter may be taken concurrently.

Day division, Second term: Lectures three hours a week, laboratory four hours a week.

P.E. Lee

Biology 61.325★

Plant Physiology

The main topics in physiology and metabolism of plants including nutrition, growth, germination and factors controlling these processes.

Prerequisite: Biology 61.220★ or Chemistry 65.220 or 65.222; Biology 61.202★ or permission of the department.

Day division, Second term: Lectures three hours a week, laboratory four hours a week.

J.A. Webb

Biology 61.330★

Introductory Microbiology

The biology of microorganisms, particularly in relation to their physiology and economic significance.

Prerequisite: Biology 61.220★ or Biochemistry 63.300; the latter may be taken concurrently.

Day division, Second term: Lectures three hours a week, laboratory four hours a week.

K.W. Joy

Biology 61.335★

Animal Physiology

The properties of physiological systems and components of animals with emphasis on their physiochemical bases.

Prerequisites: Biology 61.220★ or Chemistry 65.210. Physics 75.100 or 75.105 and Mathematics 69.107★, and 69.117★ or 69.127★ are strongly recommended.

Day division, First term: Lectures three hours a week, laboratory four hours a week.

S.L. Jacobson

Biology 61.351★

The Biophysics of Animal Movement

A biophysical treatment of various types of animal motion. Topics covered include the properties of muscles, tendons, bones, joints and the co-ordinated use of these structures. Human locomotion and fitness, bird flight, especially the soaring of the vulture and the albatross, and animal migration are discussed in detail.

Prerequisites: Biology 61.220★ and Physics 75.100 or 75.105 or permission of the department.

Day division, Second term: Lectures three hours a week, tutorial/seminar one hour a week.

J. Sinclair

Biology 61.361★

Analytical and Experimental Ecology

A half course utilizing the concepts presented in Biology 61.261★ and selected ecological experiments to analyze ecosystem types and the major factors that characterize them.

Prerequisite: Biology 61.261★.

Day division, Second term: Lectures three hours a week, laboratory four hours a week.

H.G. Merriam

Biology 61.363★

Principles and Practices in Plant Ecology

This half course stresses the dynamics and structures of plant communities. Topics include community structure, nutrient cycling, animal-plant-substrate relationships, sampling and analytical techniques, and resource management.

Prerequisite: Biology 61.261★.

Day division, First term: Lectures three hours a week, laboratory three hours a week.

I.L. Bayly

Biology 61.365★

Field Course

A half course providing students with an opportunity for intensive, continuous study of living organisms under natural conditions. Credit is based on two

weeks of full-time field work with attendant assignments, selected from several one- or two-week modules with various instructors. Costs of long-distance transportation (if applicable), room and board relating to the course are borne by the student. Details may be obtained from the co-ordinator. (Also listed as Psychology 49. 386★, animal behaviour modules only.)

Prerequisites: At least one course in biology beyond the 100 level, and written permission of the department. No more than one half credit may be obtained from Biology 61.365★.

Day division: All day, approximately six days a week, offered at different times during the year.

P.J. Weatherhead (Co-ordinator)

Biology 61.370

The Flora and Fauna of Canada

An introduction to practical taxonomy and biogeography through field and laboratory study of representative Canadian plants and animals with emphasis on local forms. It is recommended that students make collections of plants and animals during the summer before the course is taken. Detailed directions may be obtained from the instructors.

Prerequisites: Biology 61.201★ and 61.202★.

Day division: Lectures two hours a week, laboratory four hours a week.

L. Bayly, W.I. Illman, D.A. Smith

Biology 61.391★

Biology in Society

A seminar half course dealing with selected areas of biological knowledge with direct relevance to social activities of man. Not available as a continuing science course for students other than biology Majors except with permission of the student's Major department.

Prerequisite: Biology 61.201★ and 61.202★, 61.215 or permission of the department.

Evening division, First term: Seminar and discussion three hours a week.

M.E. McCully

Biology 61.393★

Biology and Development of Renewable Resources

A lecture/seminar half course for senior students in the Faculties of Arts and Social Sciences. Emphasis is placed on the role that biology and agriculture play in economic, technical, political and social development in Canada and in the Third World.

Prerequisite: Co-registration in advanced courses in the student's Major and permission of the department. Available to science students only as a free option.

Not offered 1982-83.

Biology 61.405

Invertebrate Zoology

An advanced course on the classification, morphology, comparative physiology and evolution of invertebrate animals.

Prerequisites: Biology 61.305★.

Day division: Lectures three hours a week, laboratory four hours a week.

S.B. Peck

Biology 61.410

Plant Morphogenesis

A course dealing with the problems of plant development. **Prerequisites:** Biology 61.202★ and permission of the department.

Not offered 1982-83.

Biology 61.415

Chordate Zoology

An advanced course on the classification, geographic distribution and evolution of the major groups of chordates.

Biology 61.201★.

Day division: Lectures three hours a week, laboratory four hours a week.

M.B. Fenton, D.A. Smith

Biology 61.417

Methods in Molecular Genetics

The scope and purpose of the course is to review and acquire some familiarity with the successful use of genetic techniques in the solution of problems in molecular biology. Emphasis is on the laboratory which is "unstructured", and on discussion of innovations in genetic techniques. The course is suitable for students with a developing interest in problems of molecular and cellular biology and biochemistry.

Prerequisites: Biology 61.215 or equivalent and a course in biochemistry or microbiology.

Not offered 1982-83.

Biology 61.418

Population Genetics

A lecture and seminar course on both theoretical and experimental population genetics.

Prerequisite: Biology 61.215. A course in statistics is highly recommended.

Not offered 1982-83.

Biology 61.423

Analytical Cell Biology

A lecture and laboratory course dealing with the theory and practice of modern analytical methods used in experimental cell biology. Emphasis is on methods which give information relating to cell structure or structure-function relations such as fixing, sectioning, staining, light and electron microscopy, autoradiography, photomicrography and biophysical methods. Some treatment of related biochemical techniques such as cell fractionation, electrophoresis and immunodiffusion is also included. The main emphasis is on independent laboratory work.

Prerequisite: Biology 61.321★ or equivalent.

Not offered 1982-83.

Biology 61.424

Eucaryotic Cells and their Viruses

A course dealing with the current state of knowledge

of the structure, molecular organization, reproduction and functions of eucaryotic cells and their interactions with viruses. Students will do individual or small group projects using living cells to investigate basic cellular processes or virus-cell interactions. Each student will present one seminar on his or her project.

Prerequisite: Biology 61.321★.

Day division: Lectures two hours a week, seminars additional and laboratory four hours a week average.
P.E. Lee, G. Setterfield

Biology 61.426★

Advanced Plant Biochemistry

A lecture and seminar course dealing with recent developments in selected areas of plant biochemistry. Prerequisites: Biology 61.325★ and Chemistry 65.220 or 65.222.

Day division, First term: Lectures and seminars three hours a week.

R.J. Ireland

Biology 61.427

Topics in Crop Physiology

An advanced lecture and seminar course concerning the world's major crop plants and dealing with topics selected from recent advances in metabolism, physiology, yield, disease and control of pest infestation.

Prerequisite: Biology 61.325★. Biochemistry 63.300 is recommended.

Not offered 1982-83.

Biology 61.428★

Seed Development and Germination

An advanced course dealing with the biochemistry and physiology of seed development and germination. Precludes additional credit for (former) Biology 61.425.

Prerequisites: Biology 61.325★ and Chemistry 65.220 or 65.222.

Not offered 1982-83.

Biology 61.429★

Advanced Plant Physiology

An advanced course dealing with recent developments in selected topics of plant physiology. Precludes additional credit for (former) Biology 61.425.

Prerequisites: Biology 61.325★ and Chemistry 65.220 or 65.222.

Not offered 1982-83.

Biology 61.435

Animal Physiology

A course dealing in some detail with advances made in particular areas of animal physiology. (1982-83: neurophysiology.)

Prerequisites: Biology 61.335★, Chemistry 65.220 or 65.222, Chemistry 65.210, and Physics 75.100 or 75.105, or permission of the department.

Day division: Lectures two hours a week, laboratory four hours a week.

D.R. Gardner

Biology 61.440

Taxonomy of the Flowering Plants

A general survey of the flowering plants, the bases for classification and the history of taxonomy. A project is assigned.

Prerequisite: Biology 61.202★.

Not offered 1982-83.

Biology 61.447

Quantitative Ecology

Quantitative and qualitative analyses of the distribution and abundance of plant and animal species and communities, and of related environmental phenomena.

Prerequisite: Biology 61.261★ and 61.361★ and Mathematics 69.257★ or equivalent.

Day division: Lectures two hours a week, laboratory four hours a week.

C.A. Barlow

Biology 61.455

Animal Development

A lecture, seminar and laboratory course on the descriptive and experimental parameters of animal development.

Prerequisites: Biology 61.201★ and permission of the department.

Not offered 1982-83.

Biology 61.460

Insect Morphology

A course on the morphology, evolution and function of insect structures of the more important orders and families of insects. This course is complementary to Biology 61.461, which is offered in alternate years.

Prerequisite: Biology 61.201★.

Not offered 1982-83.

Biology 61.461

Principles of Systematic Entomology

A lecture and laboratory course devoted to the study of identification of insects, the principles of theoretical taxonomy, some aspects of insect behaviour and control measures. Instructions and equipment for the required insect collection can be obtained the spring prior to the course from the instructor. This course is complementary to Biology 61.460.

Prerequisite: Permission of the department.

Day division: Lectures two hours a week, laboratory four hours a week.

H. Howden

Biology 61.469★

Evolutionary Concepts

Evolution as related to gene pools, isolation, speciation, natural selection, competition, dominance, and distributional patterns; examples from North American biota are emphasized.

Prerequisite: Biology 61.261★ and permission of the department.

Day division, First term: Lectures two hours a week, laboratory four hours a week.

H. Howden

Biology 61.471★

Evolution and Biogeography

A continuation of concepts developed in Biology 61.469★ and applied to world biotic patterns. Community evolution, tropical diversity and temporal stability are considered.

Prerequisite: Biology 61.469★.

Day division, Second term: Lectures two hours a week, laboratory four hours a week.

J. Howden

Biology 61.475

History of Biology

A seminar course on the history of biology and biological theory.

Prerequisites: Biology 61.215, a course in physiology at least concurrently, and permission of the department. Not offered 1982-83.

Biology 61.481★

Animal Behaviour

An advanced half course in the study of animal behaviour. Topics such as predator-prey interactions, mating behaviour, migration, mother-young interactions, social behaviour and inter- and intra-specific spacing behaviour are interpreted in an ecological context. Lectures, seminars and laboratories are used to achieve this coverage.

Prerequisites: Biology 61.335★ and 61.261★ and 61.361★ (or suitable equivalents) and with written permission of the department. Enrolment limited.

Day division, First term: Lectures two hours a week, laboratory four hours a week.

J. Weatherhead

Biology 61.490

Directed Special Studies and Seminar

Day division: Annually, with permission of the department.

Biology 61.491★

Directed Special Studies

Day division, both terms: Annually, with permission of the department.

Biology 61.497

Independent Study

A course for independent research and study from library sources, under the supervision of a member of the department, open only to students in the Honours A. programs. A major paper reporting the research must be submitted to the supervisor by April 1 of the inter-session or August 15 of the Summer session and the student will be examined orally on the topic of the paper by a panel of three faculty members.

Excludes additional credit for Biology 61.498.

Biology 61.498

Research Project

Fourth-year B.Sc. Honours students must carry out a research project under the supervision of a member of the department. Approval of the topic and research schedule must be obtained from the supervisor and chairman before the last day for late registration. Each student's performance is examined by a faculty committee after the completion of the project. 70% of the grade is awarded by the supervisor based on the completed research report, and the student's performance in the project. 30% of the grade is awarded by the supervisor and two advisers based on the report and the student's performance in an oral examination based on the report. The written report must be submitted by the last day for submission of course assignments. Extensions of the deadline will be allowed only at the discretion of the Chairman of the department. Precludes additional credit for Biology 61.497.

Courses Planned for Summer School 1983

61.365★, 61.490★, 61.491★, 61.497, 61.498.

Department of Chemistry

Officers of Instruction

Chairman
D.R. Wiles

Professors
C.H. Amberg
J.W. ApSimon
R.G. Barradas
C.L. Chakrabarti
J.M. Holmes
J.A. Koningstein
P. Kruus
P.M. Laughton
C.S. Tsai
D.C. Wigfield
D.R. Wiles
J.S. Wright

Associate Professors
G.W. Buchanan
B.R. Hollebone
M. Parris
R.A. Shigeishi
R.H. Wightman

Adjunct Professors
E.J. Casey, *Department of National Defence*
O.E. Edwards, *National Research Council*
C.H. Langford, *Concordia University*
H.H. Mantsch, *National Research Council*
S.A. Narang, *National Research Council*
I.E. Puddington, *National Research Council (Ret.)*
J.J. Sloan, *National Research Council*
I.C.P. Smith, *National Research Council*

General Information

Students intending to enter a program in chemistry should have a strong background in mathematics and physics as well as in chemistry. The three-year Major and four-year Honours programs in chemistry are described below. Students interested in continuing their careers in secondary school teaching, graduate studies or as professional chemists are advised to enrol in the Honours program.

A Combined Honours program in chemistry and geology is available as described below.

While Combined Honours in chemistry and mathematics or chemistry and physics are not formally available, strong continuation groupings in mathematics and/or physics can be arranged under the Honours chemistry program. Secondary specialization in biology can be arranged under the Honours chemistry program, or under the joint program in Honours biochemistry. In evaluating students for entry with advanced standing, the Department of Chemistry transfers credits but not grades.

Major Program

A total of ten courses is required for graduation after completion of the First-year Science Faculty requirements. This program must be completed before continuation into Second year and must include Chemistry 65.100, Mathematics 69.107★, 69.117★, Physics 75.100 and one other First-year Science course.

The total program (including First year) must contain:

1. Chemistry 65.100, 65.210, 65.220, 65.250 and two full credits in Third-year chemistry including Chemistry 65.311★ or 65.310, and at least one of 65.315★, 65.325★ or 65.355★; only one of Chemistry 65.370★ and 65.371★ may be used to meet the Third-year requirement;
2. Mathematics 69.107★, 69.117★ and 69.202★ or approved equivalents;
3. Physics 75.100, 75.235★ and 75.236★ or approved equivalents;
4. A First-year science course (as required in the First-year program);
5. Two arts or social science electives (see Science Faculty regulations);
6. One science course or other approved course chosen after consultation with the Department of Chemistry;
7. One free option.

In addition to the faculty requirement of a C- average in chemistry, the department also requires a grade of C- or better in at least half of all chemistry courses taken.

It is recommended that candidates choose a course in French, German or Russian as one of their arts electives.

Honours Program

A total of fifteen courses is required for the degree after completion of First-year science requirements. These requirements are the same as for the Major program except that, based on the results of an assessment test and permission of the Chairman of the department, outstanding students may be allowed to take Chemistry 65.220 in the First year instead of Chemistry 65.100. However, the total number of courses required will remain unchanged. In addition to the faculty requirement of a C+ average in Chemistry, the department also requires a grade of C+ or better in at least half of all chemistry courses taken.

The total program (including First year) must contain:

1. Chemistry 65.100, 65.210, 65.220, 65.250, 65.310★, two of 65.315★, 65.325★ and 65.355★; one full credit from 65.320, 65.321★, 65.350, 65.351★ or Biochemistry 63.300; one full credit at the 400 level in Chemistry or Biochemistry; and Chemistry 65.498;

7. Mathematics 69.107★, 69.117★ and 69.202 or approved equivalents;

8. Physics 75.100, 75.235★ and 75.236★ or approved equivalents;

9. A First-year science course (as required in the first-year program);

10. Two arts or social science electives (see Science faculty regulations);

11. Three science or other approved courses;

12. One free option.

Each candidate for Honours is required to demonstrate a reading knowledge of one of scientific French, German or Russian.

The Department of Chemistry includes all chemistry courses taken in calculating Honours standing.

Honours Project

All Honours candidates are required, as part of Chemistry 65.498, in the final year to carry out a substantial project and to write a report to their supervisor. Towards the end of the Third year, prospective candidates should obtain pertinent information from the departmental office. A brief progress report is to be presented to the supervisor and committee members before January 15. The deadline for submission of the final typed report is the first Monday in April. Honours students are also expected to attend departmental seminars in their specialty. The report and its defence are heavily weighted in determining the class of honours awarded. The grade of *In Progress* will be restricted to unusual circumstances and subject to approval by the department.

Combined Honours in Chemistry and Geology

Program Advisers: C.L. Chakrabarti and D. Watkinson

A total of fifteen courses is required for the degree after completion of the First-year science requirements. The First-year program must include Chemistry 65.100, Geology 67.100, Mathematics 69.107★ and 69.117★, and Physics 75.100.

The total program (including First year) must contain:

1. Chemistry 65.100, 65.210, 65.250, 65.350 and one chemistry credit at the 400 level;

2. Geology 67.100, 67.221★, 67.222★, 67.228★, 67.281★, 67.323★, 67.324★ and one geology credit at the 400 level;

3. Either Chemistry 65.498 or Geology 67.498. Students should consult their program adviser about selection of this in their Third year;

4. One chemistry or geology elective;

5. Mathematics 69.107★, 69.117★ and 69.202;

6. Physics 75.100;

7. Two science electives;

8. Two arts or social science electives;

9. One free option.

A language requirement must be met during the Third year by passing a course in, or demonstrating reading proficiency in one of French, German or Russian.

Graduate Program

The Department of Chemistry offers studies leading to the degree of Master of Science and to the degree of Doctor of Philosophy. For further details consult the Graduate Studies and Research Calendar.

Courses Offered

Chemistry 65.010

Introductory Chemistry

An introductory course emphasizing the fundamental laws and principles of chemistry. Accurate working of numerical problems forms an important part of the course. The laboratory course is designed to teach fundamental techniques and to give familiarity with some physical and chemical properties of a selected group of substances.

Day division: Lectures three hours a week, laboratory three hours a week.

Chemistry 65.100

General Chemistry

Solution equilibria, acid and base chemistry; electronic structure of atoms; energy states and spectra; descriptive chemistry and periodic properties of the elements; the structure of covalent and ionic substances; energy relationships and theories in bonding, equilibria, and rates of reactions. The laboratory course gives training in fundamental techniques and methods of experimental work in analysis, synthesis and other aspects of chemistry.

Precludes additional credit for Chemistry 65.111★.

Prerequisites: Chemistry 65.010 and Mathematics 69.006★ and 69.007★, or equivalent. This course is intended for students in all programs who plan to take further chemistry courses.

Day division: Lectures three hours a week, laboratory three hours a week.

Chemistry 65.107

The Chemistry of Art and Artifacts

A non-mathematical course designed for archaeologists and historians dealing with the deterioration and preservation of artifacts and works of art. This course treats: the nature and reactions of chemical substances such as stone, metal, wood, and painting materials; modern methods of studying materials and their deterioration; methods of arresting deterioration. Guest lectures and visits to local laboratories and other sites will be arranged.

Prerequisites: Grade 12 Chemistry and Mathematics

or permission of the department.

Day division: Lectures three hours a week. Laboratory work may be arranged on request.

R.G. Barradas

Chemistry 65.111★

Chemistry for Engineering Students

This First-year course is designed to familiarize students with chemical principles applicable to engineering problems. Topics such as atomic structure, the periodic system, ions and valence are treated, as are chemical crystallography, the properties of metals, semiconductors and insulators, and the properties of electrolytic solutions. This course is not a prerequisite for further chemistry courses. Individual students wishing to take further chemistry courses will, however, be considered on their merits.

Precludes additional credit for Chemistry 65.100.

Prerequisites: Chemistry 65.010, Mathematics 69.006★, and 69.007★, or equivalents.

Day division, First term: Lectures three hours a week, laboratory three hours a week.

Chemistry 65.210

Introductory Physical Chemistry

An introduction to thermodynamics and its application to problems of phase equilibria, chemical equilibria, surface chemistry, and electrochemistry. Principles of chemical dynamics and their application to analysis of reaction mechanisms.

Prerequisites: Chemistry 65.100 and Mathematics 69.107★ and 69.117★ or equivalent.

Day division: Lectures three hours a week, problems one hour a week, laboratory three hours a week.

R.A. Shigeishi

Chemistry 65.220

Organic Chemistry

Structure, synthesis and reactions of the main functional groups using both aliphatic and aromatic examples and emphasizing a mechanistic approach. Elementary stereochemistry. Biologically and industrially important molecules used as examples whenever possible. The laboratory includes transformations and characterization of selected functional groups as well as introductory spectroscopy.

Precludes additional credit for Chemistry 65.222.

Prerequisite: Chemistry 65.100.

Day and Evening divisions: Lectures three hours a week, laboratory four hours a week.

Chemistry 65.222

Organic Chemistry

A course for non-chemistry Majors. An introduction to organic chemistry paralleling Chemistry 65.220 but with an introduction to, and emphasis on, the chemistry of biologically important compounds. Laboratory similar to Chemistry 65.220.

Precludes additional credit for Chemistry 65.200.

Prerequisite: Chemistry 65.100.

Day division: Lectures three hours a week, laboratory four hours a week.

G.W. Buchanan

Chemistry 65.250

Elementary Inorganic and Analytical Chemistry

The chemical principles underlying gravimetric, titrimetric, and instrumental analysis; atomic structure, bonding, molecular and crystal structure; acid-base, coordination complex, and oxidation-reduction systems; solubility and crystallization; ionic solutions; chemistry of non-transition elements. Laboratory work in classical and instrumental analysis.

Prerequisites: Chemistry 65.100, Mathematics 69.107★ and 69.117★ or equivalent.

Day division: Lectures and problem sessions three hours a week, laboratory four hours a week.

C.L. Chakrabarti

Chemistry 65.310

Physical Chemistry

An introduction to quantum mechanics, and its use in explaining atomic and molecular structure and spectra; introduction to statistical mechanics and its application to simple systems; theories of chemical kinetics with applications.

Precludes additional credit for Chemistry 65.311★.

Prerequisites: Chemistry 65.210, Mathematics 69.202 or equivalent.

Day division: Lectures and problems four hours a week.

J.A. Koningstein

Chemistry 65.311★

Introductory Quantum Chemistry

Introduction to quantum theory, with emphasis on chemical applications. Wave functions, energy states, atomic orbitals, origins of chemical bonding, vibrational and electronic spectra, hybridization and molecular structure, symmetry, Hückel theory of conjugated molecules.

Prerequisites: Chemistry 65.210, Mathematics 69.202, or equivalent.

Day division, First term: Lectures and problems three hours a week.

J.A. Koningstein

Chemistry 65.315★

Experimental Physical Chemistry

A laboratory-based course designed to acquaint students with advanced concepts in physical chemistry and the use of more advanced physico-chemical techniques in other areas of chemistry. Students are responsible for literature surveys, acquisition of theoretical background, design of experimental procedures and mathematical analysis of data.

Prerequisites: Chemistry 65.210 and at least one of 65.220 and 65.250. Prerequisites or co-requisites Chemistry 65.310 or 65.311★.

Day division, both terms: Laboratory and seminars five hours a week.

Chemistry 65.320

Advanced Organic Chemistry

Molecular rearrangements and other organic reactions not previously studied. Synthetic sequences

Mechanisms with emphasis on reactive intermediates. Structure elucidation and stereochemistry using instrumental methods. Use of the literature of organic chemistry. Topics selected from: heterocyclic compounds, natural products, polymers, newer synthetic methods, phosphorus and sulfur compounds, photochemistry, structure reactivity relationships.

Prerequisite: Chemistry 65.220 or 65.222.

Texts: Williams and Fleming, *Spectroscopic Problems in Organic Chemistry*; March, *Advanced Organic Chemistry, Second Edition*.

Day division: Lectures three hours a week.

R.H. Wightman

Chemistry 65.321★

Intermediate Organic Chemistry

Instrumental methods for the determination of structure. Intermediates in organic reactions. Organic stereochemistry. The literature of organic chemistry.

Prerequisites: Chemistry 65.220 or 65.222.

Texts: Williams and Fleming, *Spectroscopic Problems in Organic Chemistry*; Williams and Fleming, *Spectroscopic Methods in Organic Chemistry*.

Day division, First term: Lectures three hours a week.

R.H. Wightman

Chemistry 65.325★

Experimental Organic Chemistry

A laboratory-based course including advanced concepts and techniques in organic synthesis, structure determination, and the rates and mechanisms of reactions. Students are responsible for literature surveys, acquisition of theoretical background, and design of experimental procedures.

Prerequisites: Chemistry 65.210 and either 65.220 or 65.222.

Prerequisites or co-requisites: Chemistry 65.320, 65.321★ or Biochemistry 63.300 or permission of the department.

Day division, both terms: Laboratory and seminars five hours a week.

R.H. Wightman

Chemistry 65.350

Intermediate Inorganic Chemistry

Valence theory, the periodic system, chemistry of the transition metals: role of d orbitals, preferred oxidation states, periodic variation in ionic size, redox equilibria. Chemistry of coordination compounds: nomenclature, isomerism, stability constants, bonding and kinetics. Chemistry of organometallic compounds. Structure of metals, semi-conductors and non-stoichiometric compounds. Introduction to radiochemistry.

Prerequisites: Chemistry 65.210, 65.250.

Day division: Lectures three hours a week.

M. Parris

Chemistry 65.351★

Intermediate Inorganic Chemistry

Valence theory, the periodic system, chemistry of the transition metals: role of d orbitals, preferred oxidation states, periodic variation in ionic size, redox equilibria.

Chemistry of coordination compounds: nomenclature, isomerism, stability constants, bonding and kinetics.

Prerequisites: Chemistry 65.210, 65.250.

Day division, First term: Lectures three hours a week.

M. Parris

Chemistry 65.355★

Experimental Inorganic and Analytical Chemistry

A laboratory-based course including advanced concepts and techniques in inorganic synthesis, structure determination, and analytical chemistry. Students are responsible for literature surveys, acquisition of theoretical background, design of experimental procedures and mathematical analysis of data.

Prerequisites: Chemistry 65.210 and 65.250.

Prerequisites or co-requisites: Chemistry 65.350, 65.351★ or permission of the department.

Day division, both terms: Laboratory five hours a week.

M. Parris

Chemistry 65.370★

Industrial Applications of Chemistry

A course reviewing, relating and extending the material of prerequisite chemistry courses through studies of problems in applied chemistry and introducing concepts necessary for conversion of laboratory processes to the industrial scale. The course covers several topics designed to illustrate a wide range of applications in as many areas of chemistry as possible.

Prerequisites: Chemistry 65.210, and one of Chemistry 65.220, 65.222 or 65.250.

Day division, Second term: Lectures three hours a week.

P. Kruus

Chemistry 65.371★

Environmental Chemistry

A course applying chemical principles to the study of the hydrosphere, the atmosphere and soils. Topics include composition and history of the hydrosphere and atmosphere, equilibrium modelling, microbiological catalysis of chemical transformations, water sediment interfacial chemistry, soil chemistry, chemical aspects of pollution abatement.

Prerequisites: Chemistry 65.250, or Geology 67.323★ and 67.324★, or Engineering 82.331★ and 88.240★, or Chemistry 65.222 and Biology 61.220★, or Geography 45.308.

Not offered 1982-83.

Chemistry 65.410★

Quantum Chemistry

Group theory applied to the determination of hybrid orbitals, molecular orbitals and molecular vibrations. Symmetry analysis of spectra, selection rules, allowed and forbidden reactions.

Prerequisite: Chemistry 65.310 or 65.311★ or Physics 75.362★ or permission of the department.

Day division, First term: Lectures and seminars three hours a week.

J.A. Koningstein

Chemistry 65.411★

Advanced Calculations in Physical Chemistry

A course reviewing and extending the concepts covered in Chemistry 65.210 and 65.310 by applying these concepts to more advanced, practically oriented problems. The emphasis is on problems involving thermodynamics, statistical mechanics and kinetics. Prerequisite: Chemistry 65.310 or permission of the department.

Day division, First term: Lectures and seminars three hours a week.

P. Kruus

Chemistry 65.412★

Chemical Kinetics

Complex reaction sequences, numerical solution of kinetic equations. Descriptive kinetics, including photo-chemical reactions, chain reactions, explosions, feedback loops. Homogeneous and heterogeneous catalysis. Theoretical kinetics, including collision dynamics, activated complex theory, kinetics in solution.

Prerequisite: Chemistry 65.310 or permission of the department.

Day division, Second term: Lectures and seminars three hours a week.

Chemistry 65.413★

Colloid and Surface Chemistry

Properties and stability of colloidal systems, theories of adsorption, heterogeneous catalysis, and interfacial phenomena.

Prerequisite: Chemistry 65.210 or permission of the department.

Day division, Second term: Lectures and seminars three hours a week.

J.M. Holmes

Chemistry 65.420★

Physical Organic Chemistry

Molecular orbital calculations. Woodward-Hoffmann rules. Experimental and theoretical methods for determining reaction mechanisms. Linear free energy relationships. Mechanism problem solving.

Prerequisites: Chemistry 65.320 or 65.321★ and 65.310 or 65.311★ or permission of the department.

Day division, First term: Lectures and discussions three hours a week.

P.M. Laughton

Chemistry 65.422★

Instrumental Analysis of Organic Compounds

Methods of analysis for, and structure determination of complex organic molecules. Topics include trace analysis of organics via gas chromatography and mass spectrometry, Fourier transform infrared and ¹³C NMR spectroscopy, ultra violet spectroscopy, mass spectrometry and methods for relative and absolute stereochemical determination.

Prerequisite: Chemistry 65.320 or 65.321★ or permission of the department.

Day division, First term: Lectures and seminars three hours a week.

G.W. Buchanan

Chemistry 65.423★

Synthetic Organic Chemistry

The application of reactions to the synthesis of organic molecules. Emphasis on design of sequences, new reagents and stereoselectivity.

Prerequisite: Chemistry 65.320 or permission of the department.

Day division, Second term: Lectures and seminars three hours a week.

Chemistry 65.430★

Electroanalytical Chemistry

Properties of ionic solutions, electrode processes, theory and application of electroanalytical techniques and reactions.

Prerequisites: Chemistry 65.250 and 65.310 or permission of the department.

Day division, First term: Lectures and seminars three hours a week.

R.G. Barradas

Chemistry 65.431★

Trace and Ultratrace Analytical Chemistry

Sampling and sample preservation. The problems of the blank. Trace and ultratrace analysis. Analysis of ultrapure material. Atomic absorption, atomic fluorescence and atomic and molecular emission spectroscopy. Simultaneous and sequential multi-element analysis.

Prerequisites: Chemistry 65.210 and 65.250 or permission of the department.

Not offered 1982-83.

Chemistry 65.432★

Solutions and Separations in Analytical Chemistry

Complex formation, multi-step and competing equilibria and their application to the design of selective methods of separation and determination. Electroanalytical chemistry of aqueous solutions. Phase equilibria and solvent extraction.

Prerequisites: Chemistry 65.210 and 65.250 or permission of the department.

Text: Laitinen and Harris, *Chemical Analysis, Second edition*.

Day division, Second term: Lectures and seminars three hours a week.

Chemistry 65.450★

Applications of Ligand Field Theory

Introduction to quantitative crystal field theory; the weak field approximation and application to heats of ligation; the strong field approximation and application to spectra and magnetism of inorganic compounds.

Prerequisites: Chemistry 65.310 and 65.350.

Day division, Second term: Lectures three hours a week.

B.R. Hollebone

Chemistry 65.451★

Thermodynamic Aspects of Inorganic Chemistry

The course treats topics in solid state chemistry, high temperature chemistry, and solution chemistry that is especially susceptible to thermodynamic analysis. Applications in metallurgy and mineralogy will receive attention.

Prerequisites: Chemistry 65.210 and 65.350 or 65.351★ or permission of the department.

Not offered 1982-83.

Chemistry 65.452★

Radiochemistry

A study of nuclear stability and decay; chemical studies of nuclear phenomena. Selected laboratory experiments are optional.

Prerequisites: Chemistry 65.210 and 65.350 or 65.351★, or permission of the department.

Reference text: Friedlander, Kennedy and Miller, *Nuclear and Radiochemistry*.

Day division, First term: Lectures and seminars three hours a week.

D.R. Wiles

Chemistry 65.498

Research Project and Seminar

Senior students in Honours chemistry carry out a research project under the direction of one of the members of the department. A written report and an oral presentation of the work are required before a grade can be assigned.

Day division, Annually: Laboratory and associated work at least eight hours a week.

Courses Planned for Summer School, Late Afternoon and Evening Division 1983-84*Summer 1983*

65.100, 65.350, 65.351★.

Evening Division 1983-84

65.100, 65.210.

Geography

Officers of Instruction

Chairman

T.P. Wilkinson

Supervisor of Honours Studies

M.W. Smith

Professors

J.P. Johnson, Jr.

P.J. Williams

Associate Professors

M.W. Smith

J.K. Torrance

T.P. Wilkinson

Assistant Professor

M.F. Fox

Geotechnical Science Laboratories

L. Boyle

A. Pendlington

Adjunct Professor

R.O. Ramseier, *Atmospheric Environment Service, Environment Canada*

Sessional Lecturer

D. Monahan, *Canadian Hydrographic Service, Fisheries and Oceans*

General Information

The Department of Geography, Faculty of Social Sciences, offers a full range of B.A. programs, in addition to the B.Sc. Honours programs described here. For details consult the department's main entry in this calendar, beginning on p. 166.

Honours Programs

Honours B.Sc. in Physical Geography

The Bachelor of Science Honours program in physical geography is designed to give the student an understanding of the earth's surface as man's physical environment. The student will specialize in the study of properties and processes of the earth's surface materials and atmosphere.

Program Requirements

The program consists of twenty credits beyond Senior Matriculation or Qualifying University year science, selected in a pattern approved by the Supervisor of Honours Studies in the Geography Department, and consistent with the following requirements.

1. The First year of the program will be consistent with Science Faculty requirements for First-year science.

2. The program will contain eight credits in geography at or beyond the 200 level, including the Honours Research Project 45.496 which should be taken in the final year.

3. The remaining seven credits must include:

(a) two approved credits in science, not in geography, beyond the 100 level;

(b) two approved credits in science, computer science or engineering;

(c) two arts or social science electives, one of which must be an approved credit not in geography;

(d) one free elective.

4. In meeting the requirements 1 to 3, seven credits to be taken must be selected from the lists below. These should include Geography 45.210★, 45.211★, 45.299★, 45.308, 45.311★, 45.312★, and 45.345★. In special cases students may take an appropriate graduate course in their final year, with permission of the Supervisor of Graduate Studies.

Physical Geography Courses

45.200★ Introduction to Cartography

45.201★ Statistical Methods in Geography

45.202★ Air Photo Interpretation and Remote Sensing

45.210★ The Physical Environment

45.211★ Geomorphology and Environmental Management

45.299★ Introduction to Field Techniques

45.303★ Quantitative Geography

45.308 Geography of Soils

45.311★ Environmental Monitoring

45.312★ Geomorphology

45.325 Cartography and Computer Mapping

45.345★ Physical Climatology and Climatic Change

45.400★ Field Studies

45.402★ Problems in Physical Geography

45.403★ Remote Sensing of the Environment

45.404★ Environmental Impact Assessment

45.405★ Problems of Environmental Impact Assessment

45.411★ Quaternary Geography

45.412★ Terrain Analysis

45.414★ Microclimatology

45.415★ Slope Development: Forms, Processes and Stability

45.418★ Selected Topics in Physical Geography

45.424★ Introductory Soil Mechanics and Engineering Geology

Physics

75.100 or 75.105 (required course in the Second year of the program if not taken in First year)

Mathematics

69.257★

Geology
67.233★ and 67.281★

Note:

Geography 45.201★ and Mathematics 69.257★ cannot be taken together for credit.

Recommended Program Sequence

A recommended program is:

First Year

Mathematics 69.107★ and 69.117★;
Chemistry 65.100;
Geology 67.100;
One of: Geography 45.210★ with 45.211★; or Biology 31.100; or Physics 75.100;
Arts or social science elective (may not be Geography 45.101, if 45.210★ with 45.211★ is selected).

Second Year

Geography 45.200★, 45.202★, 45.299★;
One of: Geography 45.210★ with 45.211★; 45.308; 45.345★; with an additional half credit from preceding list of approved physical geography courses;
Mathematics 69.257★;
Science elective or Physics 75.100 or 75.105 (required course in Second year if not taken in First year);
Arts or social science elective.

Third Year

Geography 45.311★ or 45.312★;
Either Geography 45.308; or 45.345★ with an additional half credit from the preceding list of approved physical geography courses;
One 400-level Geography credit;
One science continuation credit;
Arts or social science elective.

Fourth Year

Three 400-level geography credits (including 45.496);
One science continuation credit;
Free option.

Notes:

A human geography course is recommended as one of the arts or social science electives.

Combined Honours B.Sc. in Biology and Physical Geography

Students desiring a comprehensive basic education in both biology and physical geography may apply for a Combined Honours B.Sc. program. Applicants must satisfy entry requirements of the Honours B.Sc. program. Course requirements of the Combined Honours B.Sc. program are as follows:

1. Biology 61.100 (or 61.101), Mathematics 69.107★ and 69.117★ (or 69.127★), Chemistry 65.100 and one of Geology 67.100 or Physics 75.100 or 75.105. Physics must be taken in this program or Grade 13 Physics must be presented as an entrance credit.

2. Two optional credits which are acceptable courses offered by the Faculties of Arts or Social Sciences. A credit from Geography courses *not* listed on p. 388) such as Geography 45.101, is recommended.

3. One additional science credit from the list on pp. 365-366 (Geology 67.100 or Physics 75.100 or 75.105 are recommended).

4. One free option credit.

5. Ten credits in biology (or biochemistry) and physical geography (see courses listed on p. 388) beyond First-year level, including at least one half credit involving a field course. Not more than six credits in this group should be taken in one department and not more than six may be at the 200 level.

6. One additional credit in science or computing science above the 100 level, not in biology or geography and chosen in consultation with the student's program adviser.

7. Biology 61.498 or Geography 45.496.

Graduate Program

The Department of Geography offers graduate programs in Physical Geography and Geotechnical Science. For further details consult the Graduate Studies and Research Calendar.

Courses Offered

Full details of all individual course offerings are presented in the Department of Geography submission in the Faculties of Arts and Social Sciences section of the Calendar, p. 166.

Department of Geology

Officers of Instruction

Chairman

D.H. Watkinson

Associate Chairman

G.Y. Chao

Professors

K. Bell

R.L. Brown

G.Y. Chao

J.A. Donaldson

P.A. Hill

J.M. Moore, Jr.

G.B. Skippen

W.M. Tupper

D.H. Watkinson

Associate Professors

K. Hooper

G. Ranalli

R.W. Yole

Assistant Professor

S.K. Hanmer

Adjunct Professors

J. Blenkinsop, *Department of Geology, Carleton University*

E. Froese, *Geological Survey of Canada*

I. Jonasson, *Geological Survey of Canada*

J. Kukalova-Peck, *Department of Geology, Carleton University*

D.F. Sangster, *Geological Survey of Canada*

Sessional Lecturers

R.F. Emslie

A.E. Gunter

M.B. Lambert

R.W. Stemp

Instructors

J.G. MacDonald

I. Munro

Major Program

The B.Sc. program in geology is of *four* years duration beyond Senior Matriculation or Qualifying University year. A total of twenty courses is required as follows:

1. The course requirements of the First year of the general B.Sc. program (p. 365).

2. At least ten courses in geology, of which Geology 67.100, 67.221★, 67.222★, 67.228★, 67.281★, 67.233★, 67.234★, 67.323★, 67.324★, 67.333★, 67.334★, and 67.381★, 67.382★ are mandatory. (Geology 67.100 may be taken either in Qualifying University or First

year.) Students intending to major in geology should take Geology 67.100 rather than Geology 67.111★ and 67.112★, which may be substituted only by permission of the department. Geology 67.103★ may replace 67.100 for students in the Work-Study Program. *Credit will be given for only one of Geology 67.100 or Geology 67.103★.*

3. At least six courses in the other sciences above Qualifying University year level. Among these, Mathematics 69.107★, and 69.117★ or 69.127★, and Chemistry 65.100 are mandatory. At least two First-year science or mathematics courses must be passed before registration for Second-year geology courses will be permitted, except that, if Geology 67.100 has been taken in Qualifying University year, a Second-year geology course may be substituted.

4. Two approved courses in arts and/or social sciences.

5. Two courses chosen from science, arts, social sciences or engineering.

A three-year program for students not intending to become professional geologists is also available. Requirements are the same as for the B.Sc. program outlined above, except that no courses above the 300 series are required, and the total courses will number fifteen, including seven geology courses, at least five science courses outside of geology, which must include Mathematics 69.107★, and 69.117★ or 69.127★ and Chemistry 65.100, two arts or social science courses and one optional course.

A typical program is as follows:

First Year

Geology 67.100*;

Chemistry 65.100;

Physics 75.100 or 75.105 or Biology 61.100 or 61.101;

Mathematics 69.107★, and 69.117★ or 69.127★;

Arts or social science elective.

(*May be replaced by another science course if taken in Qualifying University year.)

Second Year

Geology 67.221★, 67.281★ (includes field camp),

67.222★, 67.228★, 67.233★ and 67.234★;

One First- or Second-year science course;

One arts or social science elective.

Third Year

Geology 67.323★, 67.324★, 67.333★, 67.334★, 67.381★, and 67.382★;

Second-year science course;

One elective (arts, social science, science or engineering).

Fourth Year

Three geology courses at the 400 level;
 One Second-year science course;
 One elective (arts, social science, science or engineering).

Notes

1. A working knowledge of elementary biology is required for Geology 67.234★ and 67.333★. This requirement may be fulfilled by credit for Grade 13 Biology, Biology 61.100, or 61.101, or by arrangement with the Instructor for extra reading assignments in Geology 67.234★.

2. All Major and Honours students should note that their selection of science courses, including mathematics, should be made with the prerequisites for subsequent geology courses in mind.

3. Many Fourth-year courses are given in alternate years only. Third-year students possessing prerequisites may be admitted to Fourth-year courses with the department's permission; certain Fourth-year subjects are offered in the Department of Geology, University of Ottawa, generally scheduled to alternate with those given at Carleton University. In 1982-83, some of the following geology half courses, of which two may be taken for credit at Carleton, will be offered:

Geology

4307 Permafrost Geology
 4310 Paleoecology
 4311 Evolution and the Fossil Record
 4330 Structural Geology II
 4331 Tectonics
 4344 Advanced Igneous Petrogenesis
 4345 Metamorphic Petrology II
 4342 Chemical Phase Theory
 4350 Geochemistry I
 4351 Geochemistry II
 4360 Sedimentology I
 4361 Sedimentology II
 4390 Precambrian Geology

Honours Program

University requirements concerning Honours standing must be maintained. (See pp. 364-369.)

Honours In Geology

1. Courses as prescribed for the Major program are required, except that Geology 67.498 (Thesis) is one of the mandatory courses in geology, and a course in mathematics beyond First-year level, and/or computer science is mandatory in the group of six courses required in other sciences.

2. The departmental language requirement must be met before completion of the Third year by passing a formal course in, or demonstrating reading proficiency in a language other than English. Successful completion of Grade 13 French will satisfy this requirement.

Combined Honours in Biology and Geology

Program advisers are K. Hooper and H.F. Howden.

Students desiring a comprehensive basic training in both biology and geology may apply for admission to a Combined Honours program, on completion of the First year of the Science program. Applicants must be of Honours standing and must have achieved grades of C+ or better in both Biology 61.100 and Geology 67.100.

Course requirements of the Combined Honours program are as below:

1. Biology 61.100†, Geology 67.100, Mathematics 69.107★, and 69.117★ or 69.127★. Chemistry 65.100 or Physics 75.100 or 75.105. (The course omitted i.e. chemistry or physics, must have been passed at Grade 13 level.)

2. Ten courses in biology (or biochemistry) and geology beyond First-year level, including at least one course involving a field camp. Not more than six courses in this group should be taken in one department and not more than six may be 200-level courses.

3. Biology 61.498 or Geology 67.498.

4. One half course in statistics and one half course in computer science.

5. Three optional courses, at least two of which must be arts or social science electives.

6. A language requirement must be met during the Third year by passing a course in, or demonstrating reading proficiency in *one* of French, German, Russian, Spanish, Italian, Latin, Greek, or any language acceptable to the committee and in which suitable arrangements can be made for the examination.

†See also p. 376.

Combined Honours in Chemistry and Geology

Program advisers are C.L. Chakrabarti and D.H. Watkinson.

A grade of C+ or better in both Chemistry 65.100 and Geology 67.100 and overall Honours standing are required for admittance to the program. Course requirements are as follows:

First Year

Chemistry 65.100;
 Geology 67.100;
 Mathematics 69.107★ and 69.117★;
 Physics 75.100;
 One arts or social science elective.

Second Year

Chemistry 65.210 and 65.250;
Geology 67.221★, 67.222★, 67.228★ and 67.281★;
Mathematics 69.202.

Third Year

Chemistry 65.350;
Geology 67.323★ and 67.324★;
One chemistry or geology option;
One science elective;
One arts or social science elective.

Fourth Year

Chemistry 65.498 or Geology 67.498;
One chemistry course at the 400 level;
One geology course at the 400 level;
One science elective;
One open elective.

A language requirement must be met during the Third year by passing a course in, or demonstrating reading proficiency in one of French, German or Russian.

Combined Honours in Geology and Physics

Program advisers are T.J.S. Cole and G. Ranalli.

A grade of C+ or better in both Geology 67.100 and Physics 75.100 and overall Honours standing are required for admittance to the program. Course requirements are as follows:

First Year

Physics 75.100;
Geology 67.100;
Mathematics 69.107★ and 69.117★;
Chemistry 65.100;
One arts or social science elective.

Second Year

Physics 75.211★, 75.222★, 75.235★ and 75.236★;
Geology 67.221★, 67.222★, 67.228★ and 67.281★;
Mathematics 69.202.

Third Year

Physics 75.300, 75.361★ and 75.362★;
Geology 67.323★, 67.324★ and 67.381★, 67.382★;
One optional course.

Fourth Year

Physics 75.338★;
One half-credit physics course at the 400 level;
Geology 67.481★;
One half-credit geology course at the 400 level;
Physics 75.499 or Geology 67.498;
One arts or social science elective;
One optional course.

A reading proficiency in French, German or Russian must be demonstrated in the Third year. Thesis must be presented and defended orally before an interdepartmental committee.

Combined Honours in Geology and Statistics

Program advisers are J.E. Graham and G. Ranalli.

Designed for students of Honours standing desiring a comprehensive training in geostatistics, that is, the applications of statistical methods and techniques to geological problems. Course requirements are as follows:

First Year

Geology 67.100, General Geology;
Mathematics 69.102, Calculus and 69.117★, Elementary Algebra;
Two of the following: Physics 75.100, Introductory Physics, Chemistry 65.100, General Chemistry, Biology 61.100 (or 61.101);
Computer Science 95.103★ or 95.105★, Introduction to Programming.

Second Year

Mathematics 69.208★, Intermediate Calculus, 69.217★, Linear Algebra 70.260, Introduction to the Application of Mathematics;
Geology 67.221★, Crystallography, 67.228★, Petrology I, 67.233★, Stratigraphy I, 67.281★, Field Geology I;
One arts or social sciences elective.

Third and Fourth Years

Mathematics 69.350, Statistical Theory, 69.351, Statistical Methods, 70.452★, Sampling 70.453★, Regression Analysis, 69.381★, Optimization or 69.384★, Data and Algorithms;
Two of the following three blocks: **(a)** Geology 67.323★, Petrology II and 67.324★, Mineral Deposits; **(b)** 67.381★, Structural Geology and 67.382★, Geodynamics; **(c)** 67.334★, Stratigraphy II and 67.234★, Paleontology I or 67.333★ Paleontology II; plus one and a half geology courses at the 400 level (excluding 67.498);
Geology 67.498 Honours Thesis or Mathematics 70.495★ Honours Project and an optional half course in Mathematics and Statistics;
Computer Science 95.106★, Computer Applications, 95.202★, Advanced Programming Techniques;
One arts or social sciences elective.

Graduate Courses

For information on graduate courses, please consult the Graduate Studies and Research Calendar.

Work-Study Program in Geology

This program allows students to gain professional experience while completing an academic degree. Admission to the program is permitted after completion of Geology 67.103★ or the first half of Geology 67.100. Students will spend the First term of Second year and the Second term of Third year in off-campus jobs. The department will assist students in locating jobs that are related to career opportunities in geology but the department cannot guarantee that such jobs will be available. The program is governed by the same academic regulations as regular B.Sc. programs in geology. A student may choose to graduate with a B.Sc. at the end of Year IV or may complete Year V for the B.Sc. (Hons.). A typical program is as follows:

Year I	Year II	Year III	Year IV	Year V
Study Period I (September-May) Geology 67.103★ Geology 67.221★ Chemistry 65.100 Mathematics 69.107★ Mathematics 69.117★ Elective course (science or engineering) Elective course (arts or social science) Engineering 82.104★ (during May if possible)	Work Period I (May-December)	Work Period II (May-August)	Work Period III (continues)	Honours year if desired or Year IV may be split as years II and III.
	Study Period II (January-May) Geology 67.222★ Geology 67.228★ Geology 67.234★ Two electives	Study Period III (September-December) Geology 67.233★ Geology 67.281★ Geology 67.323★ Geology 67.381★ Elective	Study Period IV (September-May) Geology 67.324★ Geology 67.333★ Geology 67.334★ Geology 67.382★ 400 series geology half-course Electives to complete degree requirements	
		Work Period III (January-August)		

Courses Offered

Geology 67.100

General Geology

The Earth as a planet; minerals, rocks, geological structures; resource geology, geological time, the development of the North American continent, the history of life.

Precludes additional credit for Geology 67.111★.

Day division: Lectures two hours a week, tutorial one hour a week, laboratory three hours a week, two field excursions during laboratory periods in the First term.

Evening division: Lectures and laboratory five hours a week, two half day field trips in the First term.

Geology 67.103★

Principles of Geology

The Earth as a planet; minerals, rocks, geological structures, geological time. Identical in course content to the first half of Geology 67.100. For students intending to enter the Work-Study Program in Geology.

Day division, First term: Lectures two hours a week, tutorial one hour a week, laboratory three hours a week, two field excursions.

Geology 67.111★

Geology, The Environment and Man I

The Earth, man's habitat. Its formation and development. Processes shaping the environment. Earth materials.

Precludes additional credit for Geology 67.100.

Open to all students except geology majors; available only as a free option for science students, with permission of their department.

Day division, First term: Lectures three hours a week; two field trips and optional films.

P.A. Hill

Geology 67.112★

Geology, the Environment and Man II

Earth resources. Conservation. Urban geology. Water supply. Geological hazards: prediction, prevention. Artificial openings and slopes. Pollution. Trace elements. Reclamation geology.

Open to all students except geology majors; available only as a free option for science students, with permission of their department.

Prerequisite: Geology 67.100 or 67.111★.

Day division, Second term: Lectures three hours a week; two field trips and optional films.

P.A. Hill

Geology 67.204★

Earth, Resources and Society

The course is designed to enhance the student's appreciation of the resource basis of contemporary society, and to explain the role of the earth sciences in the search for non-renewable resources and in the assessment of geologic hazards. Lecture topics include: non-renewable resources and the physical

limits of a finite earth; mineral resources and reserves; energy and fossil fuels; water resources; effects of mineral resources on the organization of the economy and on international relations; seismic and volcanic risk. Students are encouraged to explore aspects of these problems that relate to their discipline. No previous experience in geology is needed.

Prerequisite: at least Second-year standing in any faculty or school; open to science students with approval of their department, but not as a science continuation course.

Evening division, First term: Lectures and seminars three hours a week.

G. Ranalli

Geology 67.221★

Crystallography and Optical Mineralogy

Morphological study and classification of crystals, principles of optical crystallography.

Prerequisite: Geology 67.100, 67.103★, 67.112★.

Day division, First and Second terms: Lectures two hours a week, tutorial one hour a week, laboratory three hours a week.

G.Y. Chao

Geology 67.222★

Mineralogy

Introduction to crystal chemistry, X-ray techniques, physical mineralogy and systematic mineralogy.

Prerequisite: Geology 67.100 or 67.221★.

Day division, Second term: Lectures two hours, tutorial one hour, laboratory three hours a week.

G.Y. Chao

Geology 67.228★

Petrology I

Introduction to the origin and classification of igneous rocks. Optical properties of the rock-forming minerals. Petrographic techniques and principles of geochemistry. Prerequisite: Geology 67.221★.

Day division, Second term: Lectures two hours a week, tutorial one hour a week, laboratory three hours a week.

K. Bell

Geology 67.233★

Stratigraphy I

Principles of stratigraphy and sedimentology; sedimentary rocks. Geological framework of North America. One or more field excursions.

Prerequisite: Geology 67.100 or 67.112★ or permission of the department.

Day division, First term: Lectures two hours a week, laboratory three hours a week.

R.W. Yole

Geology 67.234★

Palaeontology I

Principles of palaeontology and palaeoecology; organic evolution of invertebrates and vertebrates; human palaeontology.

Prerequisites: Geology 67.100 or 67.112★ or permission of the department.

Day division, Second term: Lectures two hours a week, laboratory three hours a week.

K. Hooper

Geology 67.281★

Field Geology I

Basic geological methods applied to the field study of rocks. A mandatory 12-day field camp starting on September 7. Cost of long distance transportation and room and board relating to the field camp are borne by the student.

Prerequisite: Geology 67.100, 67.103★ or 67.112★.

Day division, First term: Field camp, plus laboratory three hours a week.

D.H. Watkinson, (co-ordinator), and other members of the department.

Geology 67.323★

Petrology II

Petrology of volcanic and metamorphic rocks; one day-long field trip.

Prerequisites: Geology 67.221★, 67.222★, 67.228★ and Chemistry 65.100.

Day division, First term: Lectures two hours a week, laboratory three hours a week.

Geology 67.324★

Mineral Deposits

Ore deposits, economic geology, applied geochemistry and groundwater geology. One day-long field trip.

Prerequisites: Geology 67.221★, 67.222★, 67.228★ and Chemistry 65.100.

Day division, Second term: Lectures two hours a week, laboratory three hours a week.

W.M. Tupper

Geology 67.333★

Palaeontology II

More advanced treatment of invertebrate fossils; evolutionary palaeoecology; fossil plants.

Prerequisite: Geology 67.234★.

Day division, First term: Lectures two hours a week, tutorial one hour a week, laboratory two hours a week.

K. Hooper

Geology 67.334★

Stratigraphy II

Stratigraphic analysis; sedimentary environments; sedimentary tectonics; systematic historical geology of North America.

Prerequisite: Geology 67.233★.

Day division, Second term: Lectures two hours a week, laboratory three hours a week.

R.W. Yole

Geology 67.381★

Structural Geology

The geometry of the earth's crust interpreted in the light of mechanical principles of deformation; rock mechanics; applications to geological mapping,

exploration and resource development.

Prerequisite: Geology 67.281★.

Day division, First term: Lectures two hours a week, laboratory three hours a week.

S. Hanmer

Geology 67.382★

Geodynamics

The structure and composition of the interior of the Earth: lithosphere, mantle and core. Rheological properties of lithosphere and mantle. Plate tectonics: kinematics and dynamics.

Prerequisites: Geology 67.281★ and 67.381★.

Day division, Second term: Lectures two hours a week, laboratory three hours a week.

G. Ranalli

Geology 67.383★

Gemmology

Gem identification, occurrence, genesis, synthesis and evaluation. Testing instruments and techniques. Crystallographic, optical, physical and chemical properties of gemstones.

Prerequisites: Geology 67.221★ and 67.222★ or permission of the department. Open to science students with permission of their department, but not as a science continuation course.

Evening division, Second term: Lectures and laboratories five hours a week.

Geology 67.403★

Directed Studies in Geology

One or more special projects based on a total of at least fifteen days field research, laboratory investigations, or some combination of these components. Credit for field components may be accrued during the Third year of a student's program, but laboratory projects will be arranged during the Fourth year. Assessment to be based on written reports and oral examinations. Travel expenses for any long-distance travel to be borne by student.

Prerequisites: Honours standing and permission of the department.

Day division, First or Second term.

D.H. Watkinson (Co-ordinator)

Geology 67.415★

Quaternary Geography

Offered as Geography 45.411★.

Lectures three hours a week, one term only.

Geology 67.417★

Engineering Soil Mechanics and Engineering Geology

Offered as Engineering 82.328★.

(Also listed as Geography 45.424★.)

One term only.

Geology 67.419★

Hydrology

Offered as Engineering 82.441★.

Lectures two hours a week, problems, analyses three hours alternate weeks.

One term only.

Geology 67.421★

Ore Mineralogy

Structural principles, crystal chemistry and classification of ore-forming oxides, sulfides, sulfosalts, uranium and precious-metal minerals. Principles of ore microscopy, analytical and identification techniques. Prerequisite: Geology 67.324★.

One term only.

Geology 67.422★

Metallic Mineral Deposits

Ore deposits studied from their relationships to the petrologic cycle. Ore genesis interpreted in light of field studies of local deposits, reflected light microscopy of ore suites, description of classic deposits, phase equilibria and isotopic evidence.

Prerequisite: Geology 67.324★.

Day division: Lectures, seminars and laboratories five hours a week, one term only.

D.H. Watkinson

Geology 67.423★

Petroleum Geology

Occurrence and nature of petroleum; principles of petroleum geology; exploration and production, and evaluation methods; examples of oil and gas fields with emphasis on Canadian occurrences.

Prerequisite: Geology 67.334★.

Day division: Lectures, seminars and laboratory five hours a week, one term only.

R.W. Yole

Geology 67.427★

The Geology and Application of Coal

The origin, structure, petrography and terminology of coal. Coal fields of North America with special reference to Canada. The evaluation, analysis, testing and application of coals. Extraction, utilization and beneficiation. Pollution. Economics.

Prerequisite: Geology 67.334★ or permission of the department.

Evening division, one term only.

P.A. Hill

Geology 67.428★

Property Valuation and Mineral Economics

Sampling, ore calculations, drilling and mining methods, property valuation, economics of specific mineral industries, national and international trade and mineral policies, taxation and financing of the mineral industry.

Prerequisite: Geology 67.324★ or permission of the department.

One term only.

Geology 67.431★

Marine Geology and Microfossils

Oceanological and marine geological processes; micro-organisms of the oceans; microfossils: their evolution, biostratigraphic and palaeoecologic significance and economic use; microfaunal correlation in petroleum geology. Laboratory: Examination and

identification of microfossils. Each student is required to present at least one seminar paper.

Prerequisite: Geology 67.234★ or permission of the department.

Day division: Lectures and laboratory five hours a week, one term only.

K. Hooper

Geology 67.442★

Advanced Structure

A study of the structural evolution of mountain belts, with emphasis on field methods.

Prerequisite: Geology 67.381★, 67.382★.

Day division: Lectures, seminars and laboratories five hours a week, one term only.

Geology 67.451★

Igneous Petrology

Genesis of plutonic and volcanic rocks, their spatial and petrochemical relationships and crust-mantle differentiation; associated problems in phase equilibria and isotopic studies. One-day field trip.

Prerequisite: Geology 67.323★.

Day division: Lectures and laboratories five hours a week, one term only.

K. Bell

Geology 67.452★

Metamorphic Petrology

Field relations of metamorphic rocks; graphical treatment and interpretation of mineral assemblages. Laboratory: Petrographic techniques, study of rock suites.

Prerequisite: Geology 67.323★.

One term only.

Geology 67.463★

Sedimentology

Review of sedimentary processes. Composition, texture, primary structure and origin of the major sedimentary rock types; dispersal patterns, sedimentary trends and lithofacies. Laboratory: textural analyses, heavy minerals, statistical analysis of data, and thin-section petrography.

Prerequisite: Geology 67.323★ or 67.334★.

Day division, one term only.

Geology 67.464★

Precambrian Geology

Introduction to problems of the Precambrian, emphasizing both classical and current North American studies. Laboratory: research methods, field trips, petrologic studies of representative rock suites.

Prerequisite: Geology 67.324★.

One term only.

Geology 67.481★

Physics of the Earth

The physical properties of the solid earth. Gravitational, magnetic and palaeomagnetic fields; seismology and earthquake occurrence; heat flow and thermal history. Geodynamic processes.

Prerequisites: Geology 67.381★, 67.382★ or permission of the department.

One term only.

G. Ranalli

Geology 67.482★

Geochemistry and Isotope Geology

Chemical evolution of the earth, meteoritics, development of the continental crust, origin of the atmosphere and hydrosphere, radiometric dating, stable isotopes, origin of life.

Prerequisites: Geology 67.323★ and 67.324★ or permission of the department.

Day division: Lectures and seminars five hours a week, one term only.

K. Bell

Geology 67.483★

Applied Geochemistry

Chemical and physical factors responsible for the distribution and migration of the elements in the lithosphere, hydrosphere, atmosphere and biosphere; geochemistry applied to mineral exploration; methods of analysis. Laboratory: determination of trace amounts of the common metallic elements in soils and stream sediments; case histories, research problems, field trips.

Prerequisites: Geology 67.100 or 67.112★, and 67.228★, Chemistry 65.100, or permission of the department.

Day division, one term only.

W.M. Tupper

Geology 67.484★

Exploration Geophysics

An introduction to the fundamental theory and application of geophysics to economic and structural geology. Methods studied are electrical, gravitational, magnetic, radioactive and seismic. Case history studies integrate the application of the methods.

Prerequisite: Physics 75.100 or 75.105, or permission of the department.

Day division: Lectures and problems three hours a week, one term only.

R.W. Stemp

Geology 67.487★

Field Geology II

A two-week field camp designed to develop the student's ability to observe, analyze and interpret geological field data in the light of theoretical and experimental knowledge. A written report including maps, sections and diagrams is submitted and defended in an oral examination. Near Calabogie and Kaladar, Grenville Province, May 1983.

Prerequisite: Completion of the geology core program or its equivalent.

One term only.

J.M. Moore, (Co-ordinator)

Geology 67.498

Honours Thesis

The B.Sc. thesis is to be based on a study undertaken before or during the final University year, in the field and/or the department. Before registering in the course, the student must first have obtained approval of the topic from a supervisor and the course co-ordinator. The thesis is equivalent to one full course, with an average of eight hours work per week. It shall be defended orally; a final draft suitable for defence shall normally be submitted to the co-ordinator by the deadline for Second term assignments.

K. Bell (Co-ordinator)

Courses Planned for Evening Division, 1983-85

Evening Division 1983-84

67.100B, 67.204★.

Evening Division 1984-85

67.100B, 67.204★, 67.427★.

Integrated Science Studies

Members of the Committee

Office: Room 224, Herzberg Building

Chairman

J.L. Wolfson (*Physics*)

Committee

G.R. Carmody, Vice-Chairman (*Biology*)

D. Kessler, Past Chairman (*Physics*)

B.R. Lifeso, Registrar

General Information

The Integrated Science Studies Committee arranges programs of integrated science studies designed for those students who wish to develop an understanding of science and at the same time to develop an area of interest in the humanities, social sciences or engineering. The programs require that students go into an area of mathematics, physical sciences, environmental sciences, behavioural sciences or life sciences to sufficient depth to have an understanding of its workings and significance. In the parallel studies outside the Faculty of Science, patterns of courses must be selected which give the student similar understanding. The third year includes an interdisciplinary course. The program for each student is developed individually in consultation with the advisers of the committee who will continue to supervise the progress of the student. An Honours program of integrated science studies is available under the supervision of the committee. Further information may be obtained from the chairman.

Course Requirements

First Year

The First-year program consists of five courses approved for a First-year science program including:

(a) Mathematics 69.107★ and 69.117★. For those students whose major science interests are in biology or geology, Mathematics 69.127★ is acceptable in place of 69.117★;

(b) two experimental science courses chosen from two of: biology, chemistry, geology, physics;

(c) two additional courses chosen from science, mathematics, arts, social sciences, computer science (except 95.101★), or engineering.

In establishing their First-year program, students should consult with the Chairman of the Integrated Science Studies program or a member of the committee to ensure that they register for appropriate courses.

Major Program

Although programs are planned and approved on an individual basis, the general framework of regulations is specified. Candidates in integrated science studies programs organized under the committee ordinarily take a total of fifteen courses, of which at least nine shall be selected from those offered in the Faculty of Science. At least six courses shall be selected above the 100 level in the Faculty of Science, including Integrated Science 60.399★ and at least two more courses in the Faculty of Science at the 300 or 400 level. For this purpose Technology, Society, Environment Studies 59.300, 59.401★ and 59.402★ are considered non-science rather than science options in this program.

These courses, and their prerequisites, are designated the science sequence. The course pattern must also include a non-science area of at least three courses from outside the Faculty of Science to provide a subsidiary specialization. At least two courses must be selected from the Faculties of Arts or Social Sciences. No more than seven courses are to be selected at the 100 level. Essays or special projects may be required, to be submitted to an adviser or the chairman of the committee.

Honours Program

Programs must meet usual grade-point and credit standards for Honours (see p. 364). After First-year science, they must include nine science courses above First year, including Integrated Science 60.498 (Honours Project), Integrated Science 60.399★ (Independent Study), and four other science courses from advanced (Third- and Fourth-year) offerings. Normally, at least one 400-level course apart from Integrated Science 60.498 is also included. These courses are designated the science sequence. Additionally, the program must include a pattern of interrelated non-science courses for a total of four credits.

Computer Science Specialization

One special program area for integrated science studies is a program combining a science sequence with computer science as an area outside the Faculty of Science. Science sequences satisfying the integrated science studies requirement may be developed in mathematical fundamentals related to computing or in a combination of mathematics with physics or other experimental sciences. The three-course non-science sequence for the Major degree or the four-course non-science sequence for the Honours degree may be taken in the computer science program. For a Combined Major in computer science, a student must elect an additional computer science credit. For a Combined Honours program, a student must elect two additional computer science credits. (See p. 68).

In the Combined program, credit will not be given for more than one of Computer Science 95.103★, 95.104★ or 95.105★ (see p. 68). Credit toward a degree may, however, be retained for one or both of the other two as optional course(s).

Several Computer Science courses are cross listed under Mathematics or Engineering. Credit earned for any of these courses under the Mathematics or Engineering numbers will be retained in the Integrated Science Studies program as if they were Computer Science courses. Furthermore, courses listed under both Computer Science and Mathematics numbers may serve to fulfil requirements in both the Computer Science and Mathematics portions of a program

Graduation

To qualify for graduation a student must meet normal Faculty of Science requirements and have averages of C- or better in *both* the courses of the science sequence and the courses in the non-science sequence. Also, the last five courses taken for credit should include at least one from each of the science and non-science sequences.

To meet the requirements for the C- average in the science and non-science sequences stated above, only those courses in the sequences necessary to make up the required total for graduation need be counted. All obligatory courses must be counted. The general Faculty of Science regulations apply for graduating "with distinction" (see p. 369).

Courses Offered

Integrated Science 60.399★

Independent Study

These courses are mandatory for all integrated science students. The student must have the agreement of a member of the University faculty to supervise the project. The student is responsible for filing an outline of the proposed project (which includes an indication of the methods to be used, and which has been written in consultation with the adviser), with the Integrated Science Studies Chairman not later than three weeks after registration in the course. A final report must be prepared and submitted in two copies, one to the project adviser and one to the chairman of the committee, by the last day of classes of the term in which the student is registered. This course is normally open only to integrated science studies students. Students in other programs must demonstrate the integrative or interdisciplinary nature of their proposed study.

Prerequisite or co-requisite: At least one half course at the 300 level or better and permission of the committee.

First and Second terms.

Integrated Science 60.498

Honours Project

A project is carried out by the student in consultation with a faculty adviser. The project must be approved by the adviser's department and by the Chairman of

the Integrated Science Studies program. A written outline of the proposed study, approved by the adviser, must be submitted to the chairman of the committee not later than three weeks after registration in the course. A progress report must be submitted to the adviser and the chairman by the first day of classes in the Second term. Three copies of the final written report shall be prepared and submitted by the last day of second term classes, one each for the project adviser, an integrated science studies committee member, and a third reader, who has some familiarity with the project area. An oral report will normally be required at the conclusion of the project. The project is the equivalent of one full course, with an average of eight hours of work per week. An "In Progress" grade will not be given for work not meeting the deadlines except in unusual circumstances and with the approval of the committee chairman. The fulfillment of these requirements is the responsibility of the student.

Interdisciplinary Courses

Arts and Social Sciences

Humanities 10.100

An examination of selected works, from Biblical times to the present, illustrating the various dominant views on the nature of man and his attempts to understand himself and the world about him.

Prerequisite: First-year standing or higher.

Not offered 1982-83.

Humanities 10.200★

An examination of selected works illustrating various dominant views on the nature of man and his attempts to understand himself and the world about him in the context of the twentieth century as seen from points of view of history, philosophy, social science and literature.

Prerequisite: Second-year standing or higher.

Not offered 1982-83.

Interdisciplinary 04.288

Introduction to Women's Studies

A survey course, designed to increase the student's understanding of the position of women in contemporary society. The course offers an introduction to such issues as biological and cultural sex differentiation, women and literature, women and religious institutions, women and politics, women and social and health services and women and the law. A brief introduction to the intellectual and social origins of feminism and a survey of women's place in Western European history provides a context for examining women's position in contemporary society.

Evening division: Lectures three hours a week.

D. Gorham, J. Vickers

Interdisciplinary 04.390

The Literature of Existentialism

A study of the origins, development, and principal characteristics of existentialist literature as the paramount expression of the writer's concern with *la condition humaine*. (Also listed as English 18.390.) All assigned readings will be in English.

Prerequisite: Permission of the Department of English.

Not offered 1982-83.

Science

Science 60.100

Man in His Environment

This course is designed to acquaint students in arts, social sciences and engineering, with the methodology of science in approaching a problem. Included is a general description of the aims and methods of experimental science with an emphasis on environmental and ecological problems. The historical aspects of scientific discoveries are examined, particularly those that are influencing present society. Particular attention is directed to the interactions of science and

society and to man's influence and impact on the natural environment. In a framework of the natural sciences, emphasis is on the limits of the natural systems in which man is a member.

Day division: Lectures three hours a week.

H.H.J. Nesbitt

Interdisciplinary Science 00.200

Physical Anthropology (Introduction to the Study of Prehistoric Man)

This course is designed to acquaint students of the Second and Third years (who need not have taken any previous courses in biology) with the evolutionary history of man. The lectures and demonstration periods make extensive use of the University's large collection of casts of the fossils that have been found to date and upon which the present history of the descent of man is based. Persons intending to take this course are advised to consult with the instructor in the spring before beginning the course for a list of the suggested reading.

H.H.J. Nesbitt

Technology, Society, Environment Studies

Our society increasingly faces problems requiring communication among specialists of different disciplines. This is at least in part a result of increasing specialization of people and jobs. The multidisciplinary problems raised by the interaction of an industrial society with its environment, its resource base, and its complex technical systems are addressed by three courses organized by the Technology, Society, Environment Committee. These courses develop the multidisciplinary perspective through problem units on topics including energy, the industrial revolution, pollution, transportation, political regulation of technology, and the consumer society concept, and through team projects which bring together students working in different disciplines. The three courses are Technology, Society, Environment 59.300, 59.401★ and 59.402★. They are described on pp. 439-441.

Other Courses

African Studies, see p. 432.

Asian Studies, see p. 433.

Medieval Studies, see p. 438.

Urban Studies, see p. 442.

Women's Studies, see p. 443.

Directed Interdisciplinary Studies, B.A.

For information about the B.A. Directed Interdisciplinary Studies program see p. 131.

Officers of instruction

Chairman

K.S. Williams

Assistant Chairmen

K. Hardy (*Undergraduate Studies*)

C.W.L. Garner (*Graduate Studies*)

Professor Emeritus

M.S. Macphail

Professors

P.R. Beesack

M. Chacron

M. Csörgö

D.K. Dale

D.A. Dawson

J.D. Dixon

V. Dlab

F. Fiala (*Joint appointment, School of Computer Science*)

L.D. Nel

J.N. Pandey

M. Rahman

J.N.K. Rao

L. Ribes

A.K. Md. Ehsanes Saleh

Helga H. Schirmer

W.J. Schneider

D.W. Sida

K.S. Williams

Associate Professors

W.H. Cunningham

R.M. Fischler

C.W.L. Garner

J.E. Graham

K. Hardy

A.B.M.L. Kabir

L.E. May

E.J. Norminton

J.C. Poland

I.S. Pressman

B.M. Puttaswamaiah

A. Smith

P.C. Tan

G.K. Zelmer

Assistant Professors

Marianne Helfenstein

Marion J. MacLeod

M.J. Moore

Instructor

A. Bose

Natural Sciences and Engineering Research Council

Research Fellow

B.C. Mortimer

Adjunct Professors

T. Hida (*Nagoya University, Japan*)

P. Révész (*Academy of Sciences, Hungary*)

M.B. Wilk (*Chief Statistician, Statistics Canada*)

Sessional Lecturers

M. Joliat

R.L. Rosenberg

Director, Mathematics Tutorial Centre

Margaret Hurd

Programs in Mathematics and Statistics

The Department of Mathematics and Statistics offers a wide variety of programs ranging from those giving a strong training in the theoretical aspects of mathematics and statistics to those which emphasize applications to industry and government.

The department offers both Major and Honours programs leading to either the B.A. or the B.Sc. degree. The following is a list and short description of the programs which are available:

Mathematics (Major and Honours B.A. and B.Sc.)

The Major programs are generally less theoretical than the Honours programs which may form an excellent introduction to graduate studies. The main areas of concentration are: algebra, analysis, topology, applied mathematics (classical and modern), statistics and probability.

Computer Mathematics (Major and Honours B.A. and B.Sc.)

The programs in computer mathematics are designed to provide a student with a background of computer-related mathematical ideas together with a firm base of computer science. These programs may be of interest to students who are preparing for careers in government, industry, management, or systems analysis.

Statistics (Honours B.A. and B.Sc)

This program leads to an Honours B.A. or B.Sc. degree and is designed primarily for a student who wishes to prepare for a career as a professional statistician.

The following combined Honours programs may be of particular interest:

Economics and Mathematics (Honours B.A.)

Mathematics and Philosophy (Honours B.A.)

Computer Science and Mathematics (Honours B.Sc.)

The combined Honours program in Computer Science and Mathematics resembles the Bachelor of Computer

Science program, placing equal emphasis on computer science and mathematics. There are three options available for concentration, namely:

Mathematics and Computing Theory
Numerical Methods
Statistical Methods and Operations Research

Geology and Statistics (Honours B.Sc.)

Mathematics and Physics (Double Honours B.Sc.)

Operations Research (Honours B.A. and B.Sc.)

This program is devoted to the professional discipline which deals with the scientific aspects of planning and decision-making. (See p. 417.)

Placement in First-Year Mathematics Courses

All students wishing to enrol in a First-year mathematics course are given a placement test, held either during the registration period or prior to it at times to be announced.

Students for whom the placement test reveals unacceptable weaknesses in basic skills are required to complete the pre-calculus half-course Mathematics 69.106★ in the First term before taking First-year calculus and/or algebra courses in Second term.

Students for whom the course Mathematics 69.106★ is waived normally make one of the following selections of First-year Mathematics courses:

1. Mathematics 69.102, 69.112 (students in the Faculties of Arts, Social Sciences or Science). This choice is normally required of students in First year who are in a mathematics program;
2. First term: Mathematics 69.107★; Second term: Mathematics 69.117★ (students in the Faculties of Science or Engineering);
3. First term: Mathematics 69.107★; Second term: Mathematics 69.127★ (students in business and economics or in other arts or social sciences departments);
4. First term: Mathematics 69.107★, 69.117★; Second term: Mathematics 69.207★, 69.217★ (students in the Faculties of Arts, Social Sciences or Science);
5. Mathematics 69.102; First term: Mathematics 69.117★ (students in the Faculties of Science or the School of Computer Science).

Major Programs: B.A. and B.Sc.

Core Requirements

The requirements given below are common to all Major programs in the Department of Mathematics and Statistics.

In certain cases the department may permit a student to replace courses listed in the 69 series by the corresponding Honours courses.

Each Major program requires a total of fifteen credits, including:

■ Either

Mathematics 69.102, 69.112 with an average grade of C- or better,

or

Mathematics 69.107★, 69.117★ (or 69.127★) with an average grade of B- or better, and Mathematics 69.207★, 69.217★.

■ For the B.A. Program:

Two credits at the Second-year level or above in the Faculties of Arts or Social Sciences.

■ For the B.Sc. Program:

Two science continuation credits are required (in addition to the First-year experimental science requirement). Certain computer science courses required in specific programs may be counted towards this requirement. Acceptable courses and exceptions are noted on pp. 366-367.

Two arts or social science electives.

■ In each program, the remaining courses may be chosen from any department, including Mathematics and Statistics, subject only to the restriction that of the total of fifteen credits not more than seven may be below the Second-year level.

Course requirements for Major programs:

Mathematics (Major B.A. and B.Sc.)

This program requires a minimum of seven credits in mathematics.

Course requirements for this program are:

1. core requirements (see p. 402);
2. Mathematics 69.208★, 69.218★, 69.245★, 69.257★;
3. three full-course equivalents in mathematics selected from the range 69.304★ to 69.387★, excluding 69.375★ and 69.376★.

With permission of the department, one or more of the courses in requirement 3 may be replaced by a course in the 70 series at the Third- or Fourth-year level, provided that of the total of three courses, not more than two are in the same area.

Note:

Students wishing to specialize in *Dynamical Systems* may, with the permission of the department, replace requirements 2. and 3. in the Mathematics degree requirements by:

2. Mathematics 69.208★, 69.245★, 69.257★;
3. Mathematics 69.345★, and two of Mathematics 69.304★, 69.307★, 69.381★;
4. one additional full-course equivalent in mathematics at the Third-year level;

5. one additional full-course equivalent at the Second or Third-year level chosen from mathematics or computer science.

Students wishing to specialize in *Statistics* may, with the permission of the department, replace requirements 2. and 3. in the Mathematics degree requirements by:

2. Mathematics 69.208★, 69.257★, and one of Mathematics 69.218★, 69.245★, 69.259★;
3. Mathematics 69.350, 69.351;
4. one half-course in mathematics at the Third-year level;
5. one additional full-course equivalent at the Second- or Third-year level chosen from mathematics or computer science.

Students specializing in *Dynamical Systems* or *Statistics* are encouraged to include at least one and a half credits in computer science in their programs.

Computer Mathematics (Major B.A. and B.Sc.)

This program requires a minimum of ten credits in mathematics and computer science. Computer Science 95.101★ is not acceptable in this program, even as a free option.

Course requirements for this program are:

1. core requirements (see p. 402);
2. Mathematics 69.208★, 69.218★, 69.257★;
3. Mathematics 69.384★, 69.386★, 70.385★;
4. one additional full-course equivalent in mathematics at the Third-year level;
5. Computer Science 95.102★, 95.105★, 95.106★, 95.202★;
6. one additional full-course equivalent at the Second- or Third-year level chosen from mathematics or computer science;
7. One additional full-course equivalent in computer science (95 series) at the Second-year level or above.

Note:

In special cases Computer Science 95.103★ or 95.104★ may replace 95.105★, although only one of 95.103★, 95.104★, 95.105★ can be counted for credit.

Combined Major Programs: B.A.

In general, the mathematics requirements are the same as those listed under the Mathematics Major B.A. program (see p. 221), except that only two full-course equivalents are required instead of three under regulation 3.

Programs are arranged in consultation with the Department of Mathematics and Statistics and another department in the Faculties of Arts or Social Sciences.

Honours Programs: B.A. and B.Sc.

Core Requirements

The core requirements for the Honours programs in mathematics and computer mathematics are as given below. The core requirements for the Honours program in statistics are as given below except that Mathematics 70.210 is not required in this program.

In certain cases the department may permit a student to replace a course at the Fourth-year level by a graduate course.

Each Honours program requires a total of twenty credits including:

■ Either

Mathematics 69.102, 69.112 with an average grade of C+ or better,

or

Mathematics 69.107★, 69.117★ (or 69.127★) with an average grade of B- or better, and Mathematics 69.207★, 69.217★.

■ Mathematics 70.200, 70.210, 70.260.

■ Mathematics 70.495★ (Honours Project). The Honours Project in Mathematics consists of a written report on some approved topic or topics in the field of Mathematics together with a short lecture on the report. Each student should commence work on the project under a faculty supervisor before June 1 of the Third year. The first draft of the report must be submitted to the supervisor by November 1, and the final draft to the department by January 15. Students who do not meet this latter deadline will be given the grade *Abs.*

■ For the B.A. program:

Two credits at the Second-year level or above in the Faculties of Arts or Social Sciences.

■ For the B.Sc. program:

Two science continuation credits are required (in addition to the First-year experimental science requirement). Certain computer science courses required in specific programs may be counted towards this requirement. Acceptable courses and exceptions are noted on pp. 366-367.

Two arts or social science electives.

■ In each program, the remaining courses may be chosen from any department, including mathematics and statistics, subject only to the restriction that of the total of twenty credits, not more than seven may be below the Second-year level.

Course Requirements for Honours Programs:

Mathematics (Honours B.A. and B.Sc.)

This program requires a minimum of eleven credits in mathematics.

Course requirements for this program are:

1. core requirements (see p.403);
2. Mathematics 70.301★, 70.302★, 70.307★, 70.310;
3. three additional half-courses in mathematics (70 series) at the Third-year level or above;
4. three additional half-courses in mathematics (70 series) at the Fourth-year level or above.

Notes:

It is strongly recommended that both Mathematics 70.301★ and 70.302★ be taken in the Third year.

Students wishing to specialize in *Dynamical Systems* may, with permission of the department, replace items 2, 3, and 4. in the Mathematics degree requirements by

2. Mathematics 70.302★, 70.307★, 70.308★, 70.345★, 70.346★, 70.356★, 69.381★;
3. Mathematics 70.446★, 70.470★;
4. one additional half course in mathematics at the Fourth-year level or above;
5. one additional half course chosen from computer science (95 series) or from mathematics (70 series or from 69.384★, 69.386★).

Students wishing to specialize in *Stochastics* may, with permission of the department, replace items 2, 3, and 4. in the Mathematics degree requirements by

2. Mathematics 70.302★, 70.308★, 70.350, 70.356★ and one of 70.355★, 69.381★;
3. Mathematics 70.451★, and one half-course selected from the range 70.450★ to 70.459★;
4. two additional half courses in mathematics at the Fourth-year level or above;
5. one additional half course chosen from computer science (95 series) or from mathematics (70 series or 69.384★, 69.386★).

Students specializing in *Dynamical Systems* or *Stochastics* are encouraged to include at least one and a half credits in computer science in their programs.

Computer Mathematics (Honours B.A. and B.Sc.)

This program requires a minimum of 14 credits in mathematics and computer science. Computer Science 95.101★ is not acceptable in this program, even as a free option.

Course requirements for this program are:

1. core requirements (see p.403);
2. Mathematics 70.301★, 69.384★;
3. either Mathematics 69.381★, 69.386★, 70.385★, or Mathematics 70.310 and one of 69.381★, 69.386★;
4. at least one half course from Mathematics 70.350, 70.355★, 70.356★;
5. one half course from the range Mathematics 70.302★ or above, or from 69.381★, 69.386★;
6. Mathematics 70.484★, 70.486★;
7. One half course from Mathematics 70.482★, 70.483★, 70.485★, or an approved half-course at the graduate level (70.580 series);
8. Computer Science 95.102★, 95.105★, 95.106★, 95.202★;

9. One additional half-course chosen from computer science (95 series) or from mathematics (70 series or from 69.304★, 69.381★, 69.386★);

10. One additional full-course equivalent in computer science at the Second-year level or above.

Note:

In special cases Computer Science 95.103★ or 95.104★ may replace 95.105★, although only one of 95.103★, 95.104★, 95.105★ can be counted for credit.

Statistics (Honours B.A. and B.Sc.)

This program requires a minimum of 11 credits in mathematics and statistics. The program may be of particular interest to a student wishing to pursue a career as a professional statistician.

Course requirements for this program are:

1. Core requirements less Mathematics 70.210 (see p. 403);
2. Mathematics 69.257★, 69.259★;
3. Mathematics 70.350, 70.355★, 70.452★, 69.386★, and one of Mathematics 69.381★, 70.301★, 70.302★, 70.308★;
4. Mathematics 70.356★, 70.450★, 70.453★, 70.457★, and one of Mathematics 70.451★, 70.456★, 70.458★, 70.459★;
5. Computer Science 95.103★ or 95.105★, 95.106★.

Combined Honours Programs: B.A. and B.Sc.

Economics and Mathematics (Honours B.A.)

This program requires a minimum of seven credits in economics and nine credits in mathematics. All course selections must be approved by the Department of Mathematics and Statistics and the Department of Economics.

Course requirements for this program are:

1. Mathematics 69.102, 69.112 (or their equivalents);
2. Mathematics 70.200, 70.210, 70.260, 70.301★, 70.302★, 70.350;
3. one additional full-course equivalent in mathematics at the Third- or Fourth-year level;
4. one additional full-course equivalent in mathematics at the Fourth-year level;
5. the economics requirements as given on p. 133.

Mathematics and Philosophy (Honours B.A.)

This program requires a minimum of seven credits in philosophy and nine credits in mathematics. All course selections must be approved by the Department of Mathematics and Statistics and the Department of Philosophy.

Course requirements for this program are:

1. Mathematics 69.102, 69.112 (or their equivalents);
2. Mathematics 70.200, 70.210, 70.260, 70.301★, 70.302★, 70.310;

3. one additional full-course equivalent in mathematics at the Third- or Fourth-year level;
4. one additional full-course equivalent in mathematics at the Fourth-year level;
5. For the requirements in philosophy, consult the Honours supervisor in the Department of Philosophy.

Other Combined Programs (Honours B.A.)

Other combined Honours programs such as German and mathematics, geography and mathematics are available. Please consult the Department of Mathematics and Statistics for full details.

Computer Science and Mathematics (Honours B.Sc.)

This program requires a minimum of fifteen credits in computer science and mathematics, placing equal emphasis on both these disciplines. Students may choose one of three options which serve as areas of concentration. All course selections must be approved both by the Department of Mathematics and Statistics and the School of Computer Science. A total of twenty credits is required in accordance with the conditions given below.

Option: Mathematics and Computing Theory

Course requirements for this option are:

1. Mathematics 69.102, 69.117★, Computer Science 95.102★, 95.105★, 95.106★;
2. Mathematics 69.208★, 69.217★, 69.257★, 69.311★, Computer Science 95.202★, 95.203★, 95.204★, and one of 95.206★, 95.207★;
3. Mathematics 69.309★, 70.310, 69.384★, 69.386★, Computer Science 95.304★;
4. Mathematics 70.484★, 70.485★, and one of 70.482★, 70.483★, 70.486★;
5. Computer Science 95.401★, and one of 95.302★, 95.480★;
6. Computer Science 95.495★ or Mathematics 70.495★;
7. two additional full-course equivalents in mathematics or computer science at the Second-year level or above;
8. two arts or social science electives;
9. the remaining three courses may be chosen from any department, including mathematics and statistics, subject only to the restrictions that one must be a First-year experimental science course and that of the total of 20 credits not more than seven may be below the Second-year level.

Option: Numerical Methods

Course requirements for this option are:

1. Mathematics 69.102, 69.117★, Computer Science 95.102★, 95.105★, 95.106★;
2. Mathematics 69.208★, 69.217★, 70.260, Computer Science 95.202★, 95.203★, 95.204★, and one of 95.206★, 95.207★;
3. Mathematics 69.309★, 69.311★, 69.381★, 69.384★, 70.385★, 69.386★, Computer Science 95.304★;
4. Mathematics 69.387★, 70.484★, 70.486★, Computer Science 95.401★, 95.480★;

5. Computer Science 95.495★ or Mathematics 70.495★;
6. three additional half courses in science or computer science;
7. two arts or social science electives;
8. the remaining three courses may be chosen from any department, including mathematics and statistics, subject only to the restrictions that one must be a First-year experimental science course and that of the total of 20, not more than seven may be below the Second-year level.

Option: Statistical Methods and Operations Research

Course requirements for this option are:

1. Mathematics 69.102, 69.117★, Computer Science 95.102★, 95.105★, 95.106★;
2. Mathematics 69.217★, 69.257★, 70.200, Computer Science 95.202★, 95.203★, 95.204★, and one of 95.206★, 95.207★, 95.291★;
3. Mathematics 69.311★, 70.350, 69.384★, 70.385★, Computer Science 95.304★;
4. either Mathematics 69.351 and two half courses in statistics at the Third-year level or above, or Mathematics 70.355★ and three half courses in statistics at the Third-year level or above;
5. Computer Science 95.401★, and two half courses chosen from Mathematics 69.356★, 70.484★, Computer Science 95.405★, 95.480★;
6. Computer Science 95.495★ or Mathematics 70.495★;
7. one additional full-course equivalent in computer science at the Second-year level or above;
8. two arts or social science electives;
9. The remaining three courses may be chosen from any department, including mathematics and statistics, subject only to the restrictions that one must be a First-year experimental science course and that of the total of 20, not more than seven may be below the Second-year level.

Geology and Statistics (Honours B.Sc.)

This program requires a total of twenty credits including fourteen and a half credits in geology and mathematics.

Course requirements for this program are:

First Year

1. Mathematics 69.102, 69.117★;
2. Geology 67.100;
3. two of Biology 61.100 (or 61.101), Chemistry 65.100, Physics 75.100;
4. Computer Science 95.105★ or 95.103★

Second Year

1. Mathematics 69.208★, 69.217★, 70.260;
2. Geology 67.221★, 67.228★, 67.233★, 67.251★;
3. one arts or social science elective

Third and Fourth Years

1. Mathematics 69.350, 69.351, 70.452★, 70.453★, and one of 69.381★, 69.384★;
2. two of the following three blocks:
 - (a) Geology 67.323★, 67.324★
 - (b) Geology 67.381★, 67.382★

- (c) Geology 67.334★, 67.234★ or 67.333★;
3. one and a half courses in geology at the Fourth-year level;
4. Geology 67.498★ or Mathematics 70.495★;
5. one additional half-course in mathematics;
6. Computer science 95.106★, 95.202★;
7. one arts or social science elective.

Mathematics and Physics (Double Honours B.Sc.)

This program requires a total of twenty-one credits including eighteen credits in mathematics and physics.

Entrance criteria for the program are successful completion of First year with an average grade of B+ or better in Mathematics 69.102, 69.112 (or their equivalents), and Physics 75.100 or permission of both departments.

Course requirements for this program are:

First Year

1. Mathematics 69.102, 69.112 (or their equivalents);
2. Physics 75.100;
3. Chemistry 65.100 or Biology 61.100;
4. one arts or social science elective.

Note:

It is highly recommended that Computer Science 95.103★ be taken in the First year in addition to the foregoing courses.

Second Year

1. Mathematics 70.200, 70.210, 70.260;
2. Physics 75.211★, 75.222★, 75.235★, 75.342★;
3. one half-course elective in arts or social sciences.

Third Year

1. Mathematics 70.301★, 70.302★, 70.310;
2. Physics 75.307★, 75.338★, 75.361★, 75.362★;
3. Mathematics 70.345★ or Physics 75.381★;
4. One additional half-course in mathematics or physics at the Third-year level;
5. either Mathematics 70.307★ and Physics 75.388★, or Physics 75.386.

Fourth Year

1. one full-course equivalent in mathematics at the Fourth-year level;
2. Physics 75.437★, 75.447★, 75.477★, 75.478★;
3. one additional full-course equivalent in mathematics or physics at the Third- or Fourth-year level;
4. either Mathematics 70.495★ or one of Physics 75.497★, 75.498★;
5. one half-course elective in arts or social science.

Operations Research

The Department of Mathematics and Statistics offers a program in Operations Research leading to either a

B.A. or a B.Sc. Honours degree. Information and a detailed outline of the requirements for this program are given on p. 417.

Graduate Programs: M.Sc. and Ph.D.

For requirements for graduate degrees, see the Graduate Studies and Research Calendar.

Course Numbering

Course numbers prefixed by 70 indicate courses intended primarily for Honours students; all other courses have numbers prefixed by 69. Credit will not be given for two courses having the same number but different prefixes.

Courses Offered

Mathematics 69.006★

Functions and Relations

Functions, conic sections, translations in the plane, trigonometry.

Prerequisites: Grade 12 Mathematics.

Day and Evening divisions, First term; Evening division, Second term: Lectures three hours a week and one hour tutorial.

Mathematics 69.007★

Introductory Calculus

Sequences, series, limits and continuity, derivatives, anti-derivatives and their applications.

Prerequisites: Mathematics 69.006★ or equivalent; may be taken concurrently with the permission of the department.

Evening division, First term; Day and Evening divisions, Second term: Lectures three hours a week and one hour tutorial.

Mathematics 69.102

Calculus

Functions, limits, derivatives, differentiation and applications, the definite integral, special functions, techniques of integration (including partial fractions), parametric equations, improper integrals, l'Hôpital's rules, sequences and series, Taylor's formula and series, differential equations. This course is intended for students who wish to enter a Major or Honours program in mathematics.

Precludes additional credits for Mathematics 69.107★, 69.127★, 69.131★, 69.207★ and Architecture 79.101★.

Prerequisite: Grade 13 Mathematics: functions and calculus, and *either* a satisfactory performance in the mathematics placement test *or* Mathematics 69.106★. Day division: Lectures three hours a week and one hour tutorial.

Mathematics 69.106★

Pre-Calculus Mathematics

Elementary algebra and mathematical logic, exponent rules and logarithms, substitution rules and the concept of function, extensive discussion of linear and quadratic functions, graphs of polynomials and simple rational functions, factor theorem, the circle, trigonometric functions.

Prerequisite: Grade 13 (functions).

Day and Evening divisions, First term: Lectures three hours a week and one hour tutorial.

Mathematics 69.107★

Elementary Calculus I

Functions, limits, derivatives, differentiation and applications, special functions, the definite and indefinite integral and techniques of integration.

Precludes additional credit for Mathematics 69.102.

Prerequisites: Grade 13 functions and calculus and *either* a satisfactory performance in the mathematics placement test *or* Mathematics 69.106★.

Day and Evening divisions, First and Second terms: Lectures three hours a week and one hour tutorial.

Mathematics 69.112

Algebra

Fields, complex numbers, vector algebra and geometry in 2 and 3 dimensions, matrix algebra, linear dependence, bases, linear transformations, bilinear and quadratic forms, inner products, eigenvalues, principal axis theorem. This course is intended for students who wish to enter a Major or Honours program in Mathematics.

Precludes additional credit for Mathematics 69.117★, 69.127★, 69.132★, 69.217★ and Architecture 79.201★.

Prerequisites: Grade 13 Mathematics: functions and calculus, and *either* a satisfactory performance in the mathematics placement test *or* Mathematics 69.106★. Day division: Lectures three hours a week and one hour tutorial.

Mathematics 69.117★

Elementary Algebra

Complex numbers, vector algebra and geometry in two and three dimensions, matrix algebra.

Precludes additional credit for Mathematics 69.112, 69.127★.

Prerequisites: Grade 13 functions and calculus and *either* a satisfactory performance in the mathematics placement test *or* Mathematics 69.106★.

Day and Evening divisions, First and Second terms: Lectures three hours a week, and one hour tutorial.

Mathematics 69.127★

Topics in Algebra and Calculus

Vector algebra and geometry in two and three dimensions, matrix algebra. Partial differentiation.

Precludes additional credit for Mathematics 69.112, 69.117★.

Prerequisite: Mathematics 69.107★ (may be taken concurrently).

Day and Evening divisions, Second term: Lectures three hours a week, and one hour tutorial.

Mathematics 69.131★

Mathematics in Architecture 1

Offered in the School of Architecture as Architecture 79.101★.

Mathematics 69.132★

Mathematics in Architecture 2

Offered in the School of Architecture as Architecture 79.201★.

Not offered 1982-83.

Mathematics 69.141★

Gambling I

History of gambling. Blackjack, craps, poker, horse-racing, roulette, backgammon, bookmaking and stock market. Detection of methods of cheating. Intended primarily for students *not* majoring in mathematics. Not offered 1982-83.

Mathematics 69.142★

Gambling II

A deeper mathematical investigation into some of the topics covered in Mathematics 69.141★, plus the topics of game theory and gamblers' ruin formulas. Statistical methods for detecting cheating. Some discussion also of the psychology and sociology of gambling. Intended primarily for students *not* majoring in mathematics. Prerequisites: Grade 13 Mathematics (or equivalent) and Mathematics 69.141★.

Not offered 1982-83.

Mathematics 69.201

Intermediate Calculus

Differential calculus of functions of several variables, multiple integration, elements of infinite series, complex numbers, differential equations. Intended primarily for engineering students.

Precludes additional credit for Mathematics 69.202, 69.203, 69.207★, 69.208★, 70.200.

Prerequisites: Mathematics 69.117★ or 69.127★ (may be taken concurrently) and 69.107★.

Day division: Lectures three hours a week and one hour tutorial.

Mathematics 69.202

Intermediate Mathematics

Partial differentiation, infinite series, multiple integration, differential equations, Fourier series, introduction to matrix and eigenvalue problems. Intended for science students.

Precludes additional credit for Mathematics 69.201, 69.203, 69.207★, 69.208★, 70.200.

Prerequisites: Mathematics 69.107★, and 69.117★ or 69.127★.

Day division: Lectures three hours a week and one hour tutorial.

Mathematics 69.207★

Elementary Calculus II

Further techniques of integration, improper integral, polar coordinates, parametric equations, indeterminate forms, sequences and series, Taylor's formula and series, first order and linear differential equations. Precludes additional credit for Mathematics 69.102, 69.201, 69.202, 69.203.

Prerequisite: Mathematics 69.107★.

Day division, First term and Evening division, Second term: Lectures three hours a week and one hour tutorial.

Mathematics 69.208★

Intermediate Calculus

Partial differentiation, chain rule, gradient, line and multiple integrals with applications, transformations, implicit and inverse function theorems.

Precludes additional credit for Mathematics 69.201, 69.202, 69.203, 70.200.

Prerequisites: Mathematics 69.102, or 69.107★ and 69.117★ and 69.207★.

Day division, First term and Evening division, Second term: Lectures three hours a week and one hour tutorial.

Mathematics 69.217★

Linear Algebra

n-dimensional vector spaces, linear dependence and bases, linear transformations and matrices, bilinear and quadratic forms, inner products, eigenvalues, principal axis theorem.

Precludes additional credit for Mathematics 69.112.

Prerequisite: Mathematics 69.117★ or 69.127★.

Day division, First term and Evening division, Second term: Lectures three hours a week and one hour tutorial.

Mathematics 69.218★

Introductory Abstract Algebra

Sets and relations, number theory, group theory, ring theory, cardinal numbers.

Precludes additional credit for Mathematics 70.210.

Prerequisites: Mathematics 69.112 or 69.217★.

Day division, First term and Evening division, Second term: Lectures three hours a week and one hour tutorial.

Mathematics 69.245★

Dynamical Systems I

Introduction to one- and two-dimensional Newtonian mechanics of a particle. Conservation laws. Simple harmonic motion and other solvable problems in rectilinear motion. Central forces and general particle motion in a plane. Difference equations and applications to biological systems. Application of differential equations to population problems.

Precludes additional credit for Mathematics 70.260.

Prerequisites: Mathematics 69.102 and 69.112 (or 69.117★ and 69.207★).

Day division, Second term: Lectures three hours a week and one hour tutorial.

Mathematics 69.250

Introduction to Statistical Analysis

Frequency distributions; moments; measures of central tendency, dispersion, skewness; probability; distributions (binomial, Poisson, normal, z, t, F, χ^2); statistical inference, confidence intervals; experimental designs (randomized block, Latin square); enumeration statistics; least squares analysis, introduction to correlation and regression analysis; non-parametric tests. Intended for non-mathematics students.

Precludes additional credit for Mathematics 69.257★, 69.258★, 70.260, Economics 43.220, Geography 45.201★, Psychology 49.205★.

Prerequisite: Mathematics 69.007★.

Not offered 1982-83.

Mathematics 69.257★

Introduction to Statistics

Data analysis; introduction to probability theory; some standard discrete and continuous distributions such as the binomial, Poisson, hypergeometric, normal, t, and chi-square; their application to interval estimation and significance testing; simple linear regression and correlation, contingency tables; testing for goodness-of-fit. Computational aspects of statistics.

Precludes additional credit for Mathematics 69.250, 69.258★, Economics 43.220, Geography 45.201★, Psychology 49.205★. Not acceptable for engineering students.

Prerequisites: Mathematics 69.107★ and 69.117★ or their equivalent. May be taken concurrently.

Evening division, First term and Day division, Second term: lectures three hours a week and one hour tutorial.

Mathematics 69.259★

Computational Statistics

Exploratory data analysis, non-parametric methods, linear regression; basic experimental designs; cluster analysis. The use of such computer packages as SPSS, BMDP, DAP, MINITAB will be emphasized.

Precludes additional credit for Mathematics 69.352★.

Prerequisite: Mathematics 69.257★ or equivalent or permission of the department.

Evening division, Second term: Lectures three hours a week and one hour tutorial.

Mathematics 69.304★

Boundary Value Problems

Differential equations; solution in series; the formulation of boundary value problems in mechanics, heat conduction, etc.; the method of separation of variables; eigenfunctions and eigenvalues; Fourier series; Bessel and Legendre functions and applications; Laplace transforms.

Precludes additional credit for Mathematics 69.306★ or 69.375★.

Prerequisite: Mathematics 69.201, 69.202, 69.203, or 69.208★.

Day division, First term: Lectures three hours a week and one hour tutorial.

Mathematics 69.307★

Functions of a Complex Variable

Analytic functions, contour integration, residue calculus, conformal mapping. Intended for non-engineering students.

Precludes additional credit for Mathematics 69.305★, 69.376★ or 70.307★.

Prerequisite: Mathematics 69.201, 69.202, 69.203 or 69.208★.

Day division, Second term: Lectures three hours a week and one hour tutorial.

Mathematics 69.309★

Topics in Analysis

The real number system, sequences and series, functions of a single real variable, derivatives, the definite integral, uniform convergence.

Precludes additional credit for Mathematics 70.200.

Prerequisite: Mathematics 69.201, 69.202, 69.203 or 69.208★.

Day division, Second term: Lectures three hours a week and one hour tutorial.

Mathematics 69.310

Applied Algebra

Similarity of matrices, Jordan form, spectral decomposition, Markov chains, systems of differential and difference equations, quadratic forms, symmetric operators, Rayleigh-Ritz principle. Generalized inverse and applications to statistics; least-squares with applications to Fourier series; factorizations over classical number systems; finite field extensions with applications including Latin squares, error correcting codes; Boolean rings with applications to logic and switching circuits.

Precludes additional credit for Mathematics 70.210 or 70.310.

Prerequisites: Mathematics 69.217★ and 69.218★ or permission of the department.

Not offered 1982-83.

Mathematics 69.311★

Algebraic Structures with Computer Applications

Introduction to algebraic structures: groups, rings, fields, lattices, and Boolean algebras; with applications of interest to students in computer science. This course is intended primarily for students in the computer science programs and the operations research program.

Precludes additional credit for Mathematics 69.218★ or 70.210.

Prerequisites: Mathematics 69.217★ and one of Computer Science 95.201★, 95.202★ or 95.207★ or permission of the department.

Day division, First term and Evening division, Second term: Lectures three hours a week and one hour tutorial.

Mathematics 69.325★

Euclidean Geometry and its Groups

Transformations of the Euclidean plane (isometries, similarities); solutions of geometric problems using these transformations; groups of symmetries of finite plane figures, frieze patterns, and regular polyhedra; inversion and the extension to the inversive plane; problems solved using inversion; orthogonal circles and pencils of coaxial circles.

Prerequisite: Mathematics 69.218★.

Not offered 1982-83.

Mathematics 69.326★

Plane Projective Geometry

Axioms of Desarguesian geometry, principle of duality; projectivities, perspectivities, and the fundamental theorem; collineations (homologies and elations); correlations (polarities and conics); algebraic model; introduction to finite projective planes.

Precludes additional credit for Mathematics 70.326★.

Prerequisite: Mathematics 69.218★.

Not offered 1982-83.

Mathematics 69.335★

Introduction to the Theory of Numbers

Euclidean algorithm, unique factorization theorem, linear diophantine equations, congruences, Fermat and Wilson theorems, primitive roots, quadratic residues, arithmetic functions, sums of squares, Pell's equation, rational approximation to real numbers.

Prerequisite: Mathematics 69.218★.

Not offered 1982-83.

Mathematics 69.345★

Dynamical Systems II

System of particles, collision problems; general equations and applications. Lagrange's equations, small oscillation theory. Rotating coordinate systems, applications to motion near the earth. Motion of tops, gyrocompass. Introduction to stability theory with ecological and other applications.

Precludes additional credit for Mathematics 70.345★.

Prerequisite: Mathematics 69.208★ and 69.245★.

Evening division, First term: Lectures three hours a week and one hour tutorial.

Mathematics 69.350

Statistical Theory

Discrete and continuous distributions: moment generating functions, marginal and conditional distributions, transformation theory, limiting distributions; point and interval estimation, hypothesis testing, chi-square tests with enumeration data; linear models.

Precludes additional credit for Mathematics 70.350.

Prerequisites: Mathematics 69.208★ (or 69.201, or 69.202 or 69.203) and one of 69.250, 69.257★, 69.259★, Economics 43.220 or permission of the department.

Day division: Lectures three hours a week and one hour tutorial.

Mathematics 69.351

Statistical Methods

Statistical preliminaries; simple and multiple regression techniques; correlation analysis; design of experiments including the completely randomized, randomized block, Latin square designs; factorial treatment structures; the analysis of covariance; non-parametric methods, related topics.

Precludes additional credit for Mathematics 70.355★.

Prerequisites: Mathematics 69.257★ or 69.259★ or an introductory statistics course, together with Mathematics 69.107★ and 69.117★.

Day division: Lectures three hours a week and one hour tutorial.

Mathematics 69.352★

Engineering Statistics

Displays and summaries, normal, t, chi-square and F distributions, maximum likelihood estimation, confidence intervals and tolerance limits, Bayesian approach, hypothesis testing, chi-square goodness of fit, and testing independence in contingency tables. Engineering applications: acceptance sampling, quality control charts, life testing and statistical reliability. Simple and multiple regression.

Precludes additional credit for Mathematics 69.250, 69.257★, 69.258★, 69.259★.

Prerequisite: Engineering 94.265★.

Day division, Second term: Lectures three hours a week and one hour tutorial.

Mathematics 69.375★

Mathematical Methods I

Laplace transforms, Fourier series and Fourier transforms, solutions of partial differential equations of mathematical physics, boundary value problems, applications.

Precludes additional credit for Mathematics 69.304★, 69.305★, 69.306★.

Prerequisite: Mathematics 69.201.

Day division, First term: Lectures three hours a week and one hour tutorial.

Mathematics 69.376★

Mathematical Methods II

Analytic functions, contour integration, residues, applications. Matrix theory, eigenvalues, diagonalization of symmetric matrices, applications.

Precludes additional credit for Mathematics 69.305★, 69.307★, 70.307★.

Prerequisite: Mathematics 69.201.

Day division, Second term: Lectures three hours a week and one hour tutorial.

Mathematics 69.381★

Optimization

Mathematical foundations of model building. Classical optimization. Unconstrained problems. Linear programming, network flow problems, nonlinear programming. Integer programming.

Prerequisite: Mathematics 69.208★ (or 69.201), 69.217★.

Day division, Second term: Lectures three hours a week and laboratory.

Mathematics 69.384★

Data Structures and Algorithm Analysis

Review of basic data structures such as stacks, queues, and lists. Algorithms for their implementation. Representation of arrays, sets and relations. Trees and graphs — representation and applications. Basic techniques of design and analysis of efficient algorithms for sorting and searching. Hashing, dynamic storage allocation, garbage collection. A substantial part of the assigned work in this course requires use of the computer. (Also listed as Computer Science 95.384★.)

Prerequisites: A Second-year Mathematics course and Computer Science 95.202★.

Day division, First term: Lectures three hours a week and one hour tutorial.

Mathematics 69.386★

Numerical Analysis

Elementary discussion of error, polynomial interpolation, quadrature, linear systems of equations and matrix inversion, non-linear equations, difference equations and ordinary differential equations. A substantial part of the assigned work in this course requires use of the computer. (Also listed as Computer Science 95.386★.)

Prerequisites: Computer Science 95.103★ or 95.106★, Mathematics 69.102, or 69.207★, and 69.112 or 69.217★; or 69.201, or 69.202, or 69.203.

Day division, First term: Lectures three hours a week and one hour tutorial.

Mathematics 69.387★

Mathematical Software

Incorporation of basic numerical methods into efficient, reliable software. The course includes examination of existing software systems, e.g., linear systems, non-linear systems, optimization, or differential equations. A substantial part of the assigned work in this course requires use of the computer. (Also listed as Computer Science 95.387★.)

Prerequisite: Mathematics 69.386★ or Computer Science 95.366★.

Day division, Second term: Lectures three hours a week and one hour tutorial.

Mathematics 69.397★

Directed Studies

Available only to students whose program requires a half-course equivalent not offered by the Department of Mathematics and Statistics.

Mathematics Courses for Honours Students**Mathematics 70.200****Calculus**

Real numbers, sequences, infinite series of real or complex constants, limits and continuity, functions of several variables, definite, multiple, line integrals, infinite series of functions.

Precludes additional credit for Mathematics 69.201, 69.202, 69.203, 69.208★, 69.309★.

Prerequisites: Mathematics 69.102 or 69.207★, (69.207★ may be taken concurrently with permission of the department).

Day division: Lectures three hours a week and one hour tutorial.

Mathematics 70.210**Algebra**

Set theory, algebraic systems, vector spaces, inner product spaces, linear transformations, determinants, quadratic forms, selected applications.

Precludes additional credit for Mathematics 69.218★ or 69.311★.

Prerequisites: Mathematics 69.112 or 69.217★, (69.217★ may be taken concurrently with permission of the department).

Day division: Lectures three hours a week and one hour tutorial.

Mathematics 70.260**Introduction to the Applications of Mathematics**

Mathematical model building. Difference and differential equations: linear systems, qualitative theory, numerical methods, applications to dynamical systems in physical and biological sciences. Introduction to probability and stochastic models: Markov chains, stochastic difference equations, simulation, statistical methods of model fitting. Applications to areas such as queueing, reliability, econometrics, statistical mechanics and social sciences.

Precludes additional credit for Mathematics 69.245★.

Prerequisites: Mathematics 69.102 and 69.112 or 69.207★ and 69.217★.

Day division: Lectures three hours a week and one hour tutorial.

Mathematics 70.297★**Directed Studies**

Available only to students whose program requires a half course equivalent not offered by the Department of Mathematics and Statistics.

Mathematics 70.301★**Real Analysis I**

Metric spaces; limits, continuity, open and closed sets, connectedness, bounded and compact sets, complete spaces. Riemann integration, improper integrals. Some famous theorems of analysis, e.g., Weierstrass' approximation theorem. Picard's theorem and Arzela's theorem.

Prerequisite: Mathematics 70.200 or permission of the department.

Day division, First term: Lectures three hours a week and one hour tutorial.

Mathematics 70.302★**Real Analysis II**

Convergence and uniform convergence of sequences of functions. Introduction to Lebesgue integration and Fourier series.

Prerequisite: Mathematics 70.200 or permission of the department.

Day division, Second term: Lectures three hours a week and one hour tutorial.

Mathematics 70.307★**Functions of a Complex Variable**

Analytic functions, contour integration, residue calculus, conformal mapping.

Precludes additional credit for Mathematics 69.305★, 69.307★ or 69.376★.

Prerequisite: Mathematics 70.200, or permission of the department.

Day division, First term: Lectures three hours a week and one hour tutorial.

Mathematics 70.308★**Theory of Ordinary Differential Equations**

Linear differential equations, systems of linear first order equations, adjoints and integrating factors, the Cauchy problem, analytic differential equations, existence theory, regular singular point theory, Sturm-Liouville theory.

Prerequisites: Mathematics 70.302★. May be taken concurrently.

Day division, Second term: Lectures three hours a week and one hour tutorial.

Mathematics 70.310**Modern Algebra**

Groups, rings, integral domains, fields; polynomial domains and linear algebra with applications to enumeration problems, optimization of combinatorial problems, coding theory.

Precludes additional credit for Mathematics 69.310, 70.385★.

Prerequisites: Mathematics 70.210 or permission of the department.

Day division: Lectures three hours a week and one hour tutorial.

Mathematics 70.326★**Foundations of Projective Geometry**

Definition of a general projective plane and immediate consequences; finite planes (combinatorial results, sub-planes, incidence matrices), and planar ternary rings; collineations, role of Desargues' configuration, examples of types of planes.

Prerequisite: Mathematics 70.210.

Precludes additional credit for Mathematics 69.326★. Not offered 1982-83.

Mathematics 70.336★

Elements of Set Theory

Informal treatment of the axioms of set theory. Development of the systems of natural numbers, integers, rational numbers, and real numbers, using both Dedekind sections and Cauchy sequences based on Peano's axioms. The axiom of choice, Zorn's lemma, well-ordering. The Schröder-Bernstein theorem, cardinal numbers, ordinal numbers, transfinite induction, cardinal and ordinal arithmetics.

Prerequisite: Mathematics 70.210 or permission of the department.

Not offered 1982-83.

Mathematics 70.345★

Dynamical Systems II

Dynamics of particle systems; linear and angular momentum; conservation laws; collisions. Kinematics of a rigid body; moments and products of inertia; angular momentum; two dimensional rigid body motion. Moving axes. Generalized coordinates; Lagrange's equations; Hamilton's equations. Hamilton's principle. Introduction to the Hamilton-Jacobi theory and to the concepts of integral invariants and local stability.

Precludes additional credit for Mathematics 69.345★.

Prerequisites: Mathematics 70.200 and 70.260.

Day division, First term: Lectures three hours a week and one hour tutorial.

Mathematics 70.346★

Dynamical Systems III

Basic concepts of dynamical systems. Stability; limit cycles; Lyapunov's direct method. Qualitative theory of nonlinear dynamical systems; Poincaré-Bendixon theorem. Volterra systems; principle of competitive exclusion in population biology. The mathematical theory of war. The threshold theorem of epidemiology. Basic concepts of nonequilibrium statistical mechanics.

Prerequisites: Mathematics 70.200 and 70.260.

Day division, Second term: Lectures three hours a week and one hour tutorial.

Mathematics 70.350

Mathematical Statistics

Random variables and moment generating functions; concepts of conditioning and correlation; laws of large numbers, central limit theorem; multivariate normal distribution; distributions of functions of random variables, sampling distributions, order statistics, empirical distribution functions, Monte Carlo methods, elements of decision theory, point estimation, interval estimation, tests of hypotheses; robustness, nonparametric methods.

Precludes additional credit for Mathematics 69.350.

Prerequisites: Mathematics 70.200, and 70.260, or permission of the department.

Day division: Lectures three hours a week and one hour tutorial.

Mathematics 70.355★

Regression and Experimental Design

Linear statistical models and the method of least squares. Theory and analysis of the completely randomized, randomized block, Latin square and nested designs; multiple comparisons. Factorial experiments, split plot and repeated measures designs, analysis of covariance.

Precludes additional credit for Mathematics 69.351.

Prerequisites: Mathematics 69.217★, 69.350 or 70.350 (which may be taken concurrently) or permission of the department.

Second term: Lectures three hours a week and one hour tutorial.

Mathematics 70.356★

Stochastic Processes and Queueing Theory

Stochastic modelling, Markov chains, birth and death processes, renewal theory. Queueing theory: analytical and simulation methods. Applications to computer systems, operations research, and social sciences.

Prerequisites: Mathematics 69.217★, 69.208★ and 69.257★; or Mathematics 70.260.

Day division, First term: Lectures three hours a week and one hour tutorial.

Mathematics 70.385★

Discrete Structures and Applications

Algebraic structures; lattices, Boolean algebra; elements of the theory of directed and undirected graphs; combinatorics; Polya theory of enumeration, languages over an alphabet, switching circuits, optimization and complete design, algebraic codes, flow charts, connectivity, minimal paths. A substantial part of the assigned work in this course requires use of the computer. (Also listed as Computer Science 95.385★.)

Precludes additional credit for Mathematics 70.310.

Prerequisites: Mathematics 69.218★, 70.210 or 69.311★.

Day division, Second term: Lectures three hours a week and one hour tutorial.

■ A selection of courses in the 400 series will be offered.

Mathematics 70.401★

Vector Calculus

Linear transformations, multiple integrals, differential forms, vector functions and fields, vector calculus, applications.

Prerequisite: Mathematics 70.301★ or permission of the department.

Not offered 1982-83.

Mathematics 70.403★

Functional Analysis

Metric spaces, Baire's Category theorem, contraction mappings and applications; Banach spaces, subspaces and product spaces; continuous linear functionals, the dual space; Banach spaces of continuous functions, Stone-Weierstrass theorem, equicontinuity

and Ascoli's theorem. Banach spaces of bounded linear operators, uniform boundedness, open mapping, bounded inverse and closed graph theorems.

Prerequisites: Mathematics 70.301★ and 70.302★ or permission of the department.

Day division, Second term: Lectures three hours a week and one hour tutorial.

Mathematics 70.407★

Measure Theory

Measure theory and integration of real-valued functions.

Prerequisite: Mathematics 70.302★ or permission of the department.

Day division, First term: Lectures three hours a week and one hour tutorial.

Mathematics 70.415★

Rings and Modules

Fundamental concepts in rings and modules, structure theorems, applications.

Prerequisite: Mathematics 70.310 or permission of the department.

Day division, First term.

Mathematics 70.416★

Group Theory

Fundamental principles as applied to abelian, nilpotent, solvable, free, and finite groups; representations.

Prerequisite: Mathematics 70.310 or permission of the department.

Day division, First term.

Mathematics 70.417★

Commutative Algebra

Fields, including algebraic and transcendental extensions, Galois theory, valuation theory; Noetherian commutative rings, including Noether decomposition theorem and localization.

Prerequisite: Mathematics 70.310 or permission of the department.

Not offered 1982-83.

Mathematics 70.418★

Homological Algebra and Category Theory

Axioms of set theory; categories, functors, natural transformations; free, projective, injective and flat modules; tensor products and homology functors, derived functors; dimension theory.

Prerequisite: Mathematics 70.310 or permission of the department.

Day division, Second term.

Mathematics 70.425★

Introduction to General Topology

Topological spaces, maps, subspaces, product and identification topologies, separation axioms, compactness, connectedness.

Prerequisite: Mathematics 70.301★ or permission of the department.

Day division, First term: Lectures three hours a week and one hour tutorial.

Mathematics 70.426★

Introduction to Algebraic Topology

An introduction into homotopy theory. Topics include the fundamental group, covering spaces and the classification of two-dimensional manifolds.

Prerequisites: Mathematics 70.310 and 70.425★ or permission of the department.

Day division, Second term: Lectures three hours a week and one hour tutorial.

Mathematics 70.427★

Foundations of Geometry

A study of at least one modern axiom system of Euclidean and non-Euclidean geometry, embedding of hyperbolic and Euclidean geometries in the projective plane, groups of motions, models of non-Euclidean geometry.

Prerequisite: Mathematics 70.310 (may be taken concurrently) or permission of the department.

Day division, First term.

Mathematics 70.428★

Introduction to Differentiable Manifolds

A study of differentiable manifolds from the point of view of either differential topology or differential geometry. Topics such as smooth mappings, transversality, intersection theory, vector fields on manifolds, Gaussian curvature, Riemannian manifolds, differential forms, tensors and connections are included.

Prerequisite: Mathematics 70.301★ or permission of the department.

Not offered 1982-83.

Mathematics 70.435★

Analytic Number Theory

Dirichlet series, characters, Zeta-functions, prime number theorem, Dirichlet's theorem on primes in arithmetic progressions, binary quadratic forms.

Prerequisite: Mathematics 70.307★ or permission of the department.

Not offered 1982-83.

Mathematics 70.436★

Algebraic Number Theory

Algebraic number fields, bases, algebraic integers, integral bases, arithmetic in algebraic number fields, ideal theory, class number.

Prerequisite: Mathematics 70.310 (may be taken concurrently) or permission of the department.

Day division, Second term.

Mathematics 70.445★

Analytical Dynamics

Dynamics of a rigid body in three dimensions. Euler angles. Inertia tensor, Euler's equations of motion. Hamilton's equations. Canonical transformation. Hamilton-Jacobi theory. Theory of small oscillations.

Prerequisite: Mathematics 70.345★ or permission of the department.

Not offered 1982-83.

Mathematics 70.446★

Hydrodynamics and Elasticity

Properties of Cartesian tensors; fundamental laws; motion of fluids (perfect and viscous); elastic materials.

Prerequisites: Mathematics 70.307★, 70.345★ and 70.346★ or permission of the department.

Not offered 1982-83.

Mathematics 70.447★

Tensor Analysis and Relativity Theory

Development of tensor analysis, application to Riemannian spaces and relativity theory.

Prerequisites: Mathematics 70.345★ and 70.346★ or permission of the department.

Not offered 1982-83.

Mathematics 70.450★

Parametric Estimation

Preliminaries on probability theory; exact and asymptotic sampling distributions; unbiasedness, consistency, efficiency, sufficiency, and completeness; properties of maximum likelihood estimators; least squares estimation of location and scale parameters based on order statistics and sample quantiles; Best Asymptotically Normal (BAN) estimators.

Prerequisite: Mathematics 70.350 or permission of the department.

Day division, First term: Lectures three hours a week and one hour tutorial.

Mathematics 70.451★

Probability Theory

Introduction to probability, characteristic functions, probability distributions, limit theorems.

Prerequisite: Mathematics 70.350 or permission of the department.

Day division, First term: Lectures three hours a week and one hour tutorial.

Mathematics 70.452★

Sampling: Theory and Methods I

Basic concepts in sampling from finite populations; simple random sampling; stratified sampling; choice of sampling unit; cluster and systematic sampling; introduction to multistage sampling; ratio estimation; sampling with unequal probabilities and with replacement; replicated sampling; related topics.

Prerequisite: Mathematics 70.350 or permission of the department.

Day division, First term: Lectures three hours a week and one hour tutorial.

Mathematics 70.453★

Applied Multivariate Analysis

Selected topics in regression and correlation non-linear models. Multivariate statistical methods, principal components, factor analysis, multivariate analysis of variance, discriminant analysis, canonical correlation, analysis of categorical data.

Prerequisite: Mathematics 70.355★ or permission of the department.

Day division, Second term: Lectures three hours a week and one hour tutorial.

Mathematics 70.456★

Non-Parametric Methods I

Order statistics; rank statistics; permutations; uniform distribution over the space of permutations; distribution of linear rank statistics; approximate normality of linear rank statistics; hypothesis of randomness; stochastic ordering; Wilcoxon test, median tests, Van Der Waerden test, Kolmogorov-Smirnov test; hypothesis of symmetry and random blocks; hypothesis of independence; treatment of ties; power and efficiency of rank tests.

Prerequisite: Mathematics 70.350 or permission of the department.

Not offered 1982-83.

Mathematics 70.457★

Statistical Inference

Sufficient statistics, simple and composite hypotheses, most powerful and similar region test, distribution-free tests, confidence intervals, goodness-of-fit and likelihood ratio tests, large sample theory, Bayesian and likelihood methods, sequential tests.

Prerequisite: Mathematics 70.450★ or permission of the department.

Day division, Second term: Lectures three hours a week and one hour tutorial.

Mathematics 70.458★

Stochastic Models

Markov systems, stochastic networks, queueing networks, spatial processes, approximation methods in stochastic processes and queueing theory. Applications to the modelling and analysis of computer-communications systems and other distributed networks.

Prerequisite: Mathematics 70.356★ or permission of the department.

Day division, Second term: Lectures three hours a week and one hour tutorial.

Mathematics 70.459★

Stochastic Optimization

Decision making under uncertainty: stochastic dynamic programming, Markov decision processes, search theory, sequential inference problems, optimal stopping. Applications in various fields. Students will present a paper on applications of particular interest to them.

Prerequisite: Mathematics 70.356★ or a course in stochastics, or permission of the department.

Not offered 1982-83.

Mathematics 70.470★

Partial Differential Equations

First order linear, quasi-linear, and nonlinear equations; second order equations in two and more variables; systems of equations; the wave equation; Laplace and Poisson equations, Dirichlet and Neumann problems; Green's functions.

Prerequisites: Mathematics 70.308★ and one of 70.302★ or 70.307★ or permission of the department. Not offered 1982-83.

Mathematics 70.471★

Partial Differential Equations

Theory of distributions, initial-value problems based on 2-dimensions wave equations, Laplace transform, Fourier integral transform, diffusion problems, Helmholtz equation with application to boundary and initial-value problems in cylindrical and spherical coordinates.

Prerequisites: Mathematics 70.308★ and one of 70.302★ or 70.307★ or permission of the department. Not offered 1982-83.

Mathematics 70.472★

Integral Transforms

Laplace, Fourier, Hankel and Mellin transforms, selection of a suitable transform for a given partial differential equation boundary value problem. Operational properties of transforms. Inversion theorems. Approximate evaluation of inversion integrals for small and large values of parameter. Application to the solution of integral equations.

Prerequisite: Mathematics 70.307★ or permission of the department. Not offered 1982-83.

Mathematics 70.473★

Qualitative Theory of Ordinary Differential Equations

Ordinary differential equations: existence-uniqueness theorems, vector formulation for systems; stability theory, Lyapunov theorems, perturbation theorems and structural stability; Poincaré-Bendixon theory.

Prerequisites: Mathematics 70.301★, 70.308★. Not offered 1982-83.

Mathematics 70.482★

Introduction to Mathematical Logic

Symbolic logic, propositional and predicate calculi, set theory and model theory, completeness.

Prerequisite: Mathematics 70.210 or permission of the department. Not offered 1982-83.

Mathematics 70.483★

Topics in Applied Logic

Recursive functions and computability, algorithms, Church's thesis, Turing machines, computational logic. (Also listed as Computer Science 95.483★.)

Prerequisite: Mathematics 70.210 or 70.385★ or permission of the department. Day division, Second term: Lectures three hours a week and one hour tutorial.

Mathematics 70.484★

Design and Analysis of Algorithms

Description: design techniques: divide and conquer, backtracking, dynamic programming, search methods. Algorithms for graph problems, optimization problems, algebraic problems. Lower bounds and the P-NP question. Some of the assigned work in this course requires use of the computer. (Also listed as Computer Science 95.484★.)

Prerequisite: Mathematics 69.384★ or permission of the department.

Day division, First term: Lectures three hours a week and one hour tutorial.

Mathematics 70.485★

Theory of Automata

Finite automata and regular expressions, properties of regular sets, context-free grammars, pushdown automata, deterministic context-free languages. Turing machines, the Chomsky hierarchy. Undecidability, intractable problems. Some of the assigned work in this course requires use of the computer. (Also listed as Computer Science 95.485★.)

Prerequisite: Mathematics 70.385★ or 70.310 or permission of the department.

Day division, First term: Lectures three hours a week and one hour tutorial.

Mathematics 70.486★

Numerical Analysis

Study of matrix inversion techniques; techniques of finding eigenvalues and eigenvectors, solution of systems of linear equations; direct and indirect methods, their comparison and error analysis; applications in optimization and other areas. Some of the assigned work in this course requires use of the computer. (Also listed as Computer Science 95.486★.)

Prerequisite: Permission of the department.

Day division, Second term: Lectures three hours a week and one hour tutorial.

Mathematics 70.487★

Game Theory

Two-person zero-sum games; infinite games; multi-stage games; differential games; utility theory; two-person general-sum games; bargaining problem; n-person games; games with a continuum of players.

Prerequisite: Mathematics 70.301★ or permission of the department.

Not offered 1982-83.

Mathematics 70.495★

Honours Project

Consists of a written report on some approved topic or topics in the field of mathematics, together with a short lecture on the report.

Prerequisite: Honours mathematics students only, see p. 403.

Mathematics 70.496★

Directed Studies

Prerequisite: Honours mathematics students only.
First and Second terms.

Mathematics 70.497★

Directed Studies

Available only to students whose program requires a half course not offered by the Department of Mathematics and Statistics.

Courses Planned for Summer School and Evening Division, 1983-84.

Summer 1983

69.107★, 69.117★, 69.127★, 69.201, 69.257★.

Evening 1983-84

69.006★, 69.007★, 69.106★, 69.107★, 69.117★, 69.127★,
69.207★, 69.208★, 69.217★, 69.218★, 69.257★, 69.351.

Program Co-ordinator

R. Fischler
Department of Mathematics and Statistics
Room 617 Arts Tower
Telephone 231-6781 or 231-5500.

This program leads to either a B.A. or B.Sc. Honours degree.

General Information

Operations research is the generic name given to a wide range of activities associated with planning and decision making. The techniques used are many and varied. They include mathematical modelling, optimization, statistical analysis, stochastic processes and computer simulation.

This career-oriented program, while giving a strong base in the above techniques, exposes the student to various applications, including economics and management studies.

The program at Carleton will appeal to students who are good in mathematics and who are interested in computing and the application of mathematical techniques to real-life situations. Graduates of the program will also receive the "Diploma in Operations Research" from the Canadian Operational Research Society and will be prepared for positions in a wide variety of industrial and governmental organizations; they will also be qualified to continue in a graduate program in Operations Research.

Admission Requirements

The admission requirements for this program are the same as those specified for the B.A. Honours program (see p. 96) and the B.Sc. Honours program (see p. 64).

Course Requirements

A total of twenty courses is required in accordance with the conditions given below. All course selections must be approved by the Department of Mathematics and Statistics.

Students in the B.Sc. program must include a First-year experimental science in their First-year course selection.

1. either

Mathematics 69.102, 69.112 with an average grade of C+ or better,

or

Mathematics 69.107★, 69.117★ (or 69.127★) with an average grade of B- or better, and Mathematics 69.207★, 69.217★;

2. Mathematics 70.200, 70.260; 69.259★ or 69.352★;

3. Mathematics 70.350, 70.356★, 69.311★, 69.386★, 69.387★; Mathematics 69.381★ or Economics 43.404★;

4. Mathematics 70.355★ or 70.453★, 70.459★, 70.495★; Mathematics 70.583★ or Economics 43.405★;

5. two introductory half-courses in Computer Science (preferably 95.103★, 95.106★) and Computer Science 95.310★, 95.405★;

6. five approved full-course equivalents in applied areas. At least two and one-half of these should be in economics (excluding the courses listed above) and management studies. At least two half courses must be taken each year. For the B.Sc. student, two of these must be arts or social science electives. The following list indicates a few of the many possible application-oriented courses. Other possibilities as well as various "paths" are given in the brochure, *A Guide to Careers in Operations Research*, available from the Department of Mathematics and Statistics.

Management Studies

- 42.208★ Introduction to Marketing
- 42.250★ Introduction to Business Finance
- 42.290★ An Introduction to Business Information Systems
- 42.291★ Quantitative Applications of Computers in Business
- 42.210★ Introduction to Administrative Processes
- 42.211★ Introduction to Organizational Behaviour
- 42.357★ Introduction to Industrial Relations

Economics

- 43.100 Introduction to Economics
- 43.365★ The Economics of Planning
- 43.485 Introduction to Econometrics

Accounting

- 41.101★ Principles of Financial Accounting
- 41.102★ Management Accounting
- 41.325★ Cost Accounting

Geography

- 45.340 Geography of Economic Systems
- 45.442★ Transportation Geography
- 45.443★ Issues in Applied Economic Geography

Psychology

- 49.210★ Introduction to Social Psychology
- 49.340 Personnel Psychology

Sociology

- 53.246★ Industrial Sociology
- 53.355 Complex Organizations

Philosophy

- 32.284★ Society, Value and Technology

Technology, Society, Environment Studies

- 59.300 Technology-Society Interaction

7. The remaining three courses may be chosen from any department, including mathematics and statistics, subject only to the restriction that of the total of twenty courses, not more than seven may be below the Second-year level.

Officers of Instruction

Chairman

M.K. Sundaresan

Professors

M.K. Carnegie

L. Clarke

W. Edwards

R. Kessler

R. Love

M.K. Sundaresan

L. Wolfson

Visiting Professor

A. Herzberg

Associate Professors

D. Barton

J. Brown

L. Carter

J.S. Cole

Copley

E. Hardy

Resnick

J. Romo

J.S. Watson

Research Scientists

Estabrooks

J. Hemingway

Research Associate

MacPherson

Instructors

G. Boutin

Menagh

Adjunct Professors

J. Alcock, *National Research Council*

F.W. Embleton, *National Research Council*

K. Hargrove, *National Research Council*

P. Hincks

Sessional Lecturer

Avery

General Information

Students taking a single course in physics should take Physics 75.010 or 75.105. Students taking more than one course in physics should take Physics 75.100.

Prerequisites for entry into Second-year courses are normally Physics 75.100, and Mathematics 69.107★ and 69.117★ or 69.127★. Mathematics 69.102 and 69.112 may be taken instead. Subject to the recommendation of the Major department and the approval

of the Physics Department, other combinations of one of Physics 75.100 or 75.105 and Mathematics may be offered. Prerequisites for the Third-year courses will normally be Physics 75.211★, 75.222★ and 75.235★.

The *Physics of Modern Technology* option described below in detail is a program which may be of particular interest to students wishing to study physics from an applied point of view and choosing careers in industry. For students entering this option, possibilities of combining studies in certain academic terms together with work in industry in other terms will be strongly explored.

Part-time students are accepted in the department. Such students should consult with the department for full details of the available programs.

Major Program

Fifteen courses as follows:

1. two arts or acceptable social science courses;
2. one free option;
3. twelve more courses chosen with the approval of the department.

A typical pattern:

First Year

Physics 75.100;

Chemistry 65.100;

Mathematics 69.107★, 69.117★;

Biology 61.100 or 61.101 or Geology 67.100;

one arts or acceptable social science course.

Second Year

Physics 75.211★, 75.222★, 75.235★, 75.236★;

Mathematics 69.207★, 69.208★, 69.217★;

one half course in physics, mathematics, computer science or engineering;

one arts or acceptable social science course or a free option.

Third Year

Physics 75.300 or 75.307★ or 75.308★, 75.361★, 75.362★, 75.338★, 75.342★;

Mathematics 69.375★, 69.376★;

if Physics 75.300 is not taken, one half course in physics, mathematics, computer science or engineering;

one arts or acceptable social science course or a free option.

Honours Programs

Twenty courses as follows:

1. two acceptable arts or social science courses;

Physics 420

2. one free option;
3. seventeen more courses chosen with the approval of the department.

Experimental Options

First Year

As for the Major program above or:

Physics 75.100;
Chemistry 65.100;
Mathematics 69.102, 69.112;
one acceptable arts or social science course.

Second Year

Physics 75.211★, 75.222★, 75.235★, 75.236★;
Mathematics 69.208★;
Mathematics 69.257★ or Science 60.200★;
either
(a) if Mathematics 69.107★, 69.117★ were taken in First year, Mathematics 69.207★, 69.217★; or
(b) if Mathematics 69.102, 69.112 were taken in First year, the equivalent of one full course chosen from physics, mathematics, computer science or engineering; one acceptable arts or social science course or a free option.

Third Year

Physics 75.300, 75.338★, 75.342★, 75.361★, 75.362★, 75.381★, 75.386;
one half course in physics, mathematics, computer science or engineering or one half an acceptable arts or social science course or a one half course free option.

Fourth Year,

Physics 75.400 (students doing laboratory work in other departments may be allowed to register in Physics 75.407★ or 75.408★);
Physics 75.437★, 75.477★, 75.478★;
Physics 75.458★ or 75.462★ or 75.468★;
Physics 75.499 or 75.497★ or 75.498★;
one acceptable arts or social science course or a free option;
sufficient courses in physics, mathematics, computer science or engineering to bring the total to five courses.

Physics of Modern Technology Option

The typical course requirements for this option are indicated below.

First Year

Physics 75.100;
One of Chemistry 65.100, Geology 67.100 or Biology 61.100;
Mathematics 69.107★; 69.117★;
Computer Science 95.103★, 95.105★;
One acceptable arts or social science course.

Second Year

Physics 75.211★, 75.222★, 75.235★, 75.236★;
Mathematics 69.207★, 69.208★, 69.217★;
One half course chosen from physics, mathematics or computer science;
One acceptable arts or social science course.

Third Year

Physics 75.300, 75.335★, 75.338★, 75.342★, 75.361★, 75.362★, 75.386;
One half course chosen from physics, mathematics or computer science.

Fourth Year

Physics 75.400, 75.428★, 75.435★, 75.437★, 75.458★, 75.499;
One full course chosen from physics, mathematics or computer science.

In this option, the work in the Physics 75.300 and 75.400 laboratories will emphasize experiments and project work of interest to the high-technology industries. The main areas emphasized in the advanced laboratories will be: modern electronics, digital techniques and methods, use of computers in the control and analysis of experiments, modern optics, ultrasound, and sensing and imaging problems. In Physics 75.499 students will work on projects from lists composed from typical technological projects encountered frequently in industries.

Theoretical Option

First Year

Physics 75.100;
Chemistry 65.100;
Mathematics 69.102, 69.112;
one acceptable arts or social science course.

Second Year

Physics 75.211★, 75.222★, 75.235★, 75.236★;
Mathematics 69.208★, 69.257★ or Science 60.200★;
the equivalent of one full course chosen from physics, mathematics, computer science or engineering;
one acceptable arts or social science course or a free option.

Third Year

Physics 75.307★ or 75.308★;
Physics 75.338★, 75.342★, 75.361★, 75.362★, 75.381★, 75.386;
The equivalent of one full course chosen from physics, mathematics, computer science, engineering or one acceptable arts or social science course or a free option.

Fourth Year

Physics 75.407★ or 75.408★;
 Physics 75.437★, 75.447★, 75.477★, 75.478★;
 Physics 75.497★ or 75.498★ or 75.499;
 one acceptable arts or social science course or a free option;
 sufficient courses in physics, mathematics, computer science or engineering to bring the total to five courses.

Combined Honours in Geology and Physics

Program Advisers are K. Bell and T.J.S. Cole.

A grade of C+ or better in both Geology 67.100 and Physics 75.100, and overall Honours standing are required before admittance to the program.

Course requirements are as follows:

First Year

Physics 75.100;
 Geology 67.100;
 Mathematics 69.107★ and 69.117★;
 Chemistry 65.100;
 one arts or social science course.

Second Year

Physics 75.211★, 75.222★, 75.235★, 75.236★;
 Geology 67.221★, 67.222★, 67.228★, 67.281★;
 Mathematics 69.202;
 field camp.

Third Year

Physics 75.300, 75.361★, 75.362★;
 Geology 67.323★, 67.324★, 67.381★, 67.382★;
 one free option;
 optional field camp.

A reading proficiency in Russian, German or French must be demonstrated in the Third year.

Fourth Year

Physics 75.338★;
 one half-credit physics course at the 400 level;
 Geology 67.481★;
 one half-credit geology course at the 400 level;
 Physics 75.499 or Geology 67.498;
 one free option;
 one arts or social science course;

A thesis shall be presented and defended orally before the Interdepartmental Committee.

Combined Honours in Physics and Computer Science

The program offers the student the possibility of obtaining skills for tackling problems of an applied nature such as those encountered in the high technology industries. Because students in this program will develop a strong background in physics and related mathematics, they are most likely to have the skills which will be in high demand in the next

decade in a variety of areas. Students in this program follow a prescribed combined Honours B.Sc. program which features equal emphasis on physics and computer science.

Program advisers are M.K. Sundaresan and J.E. Neilson.

First Year

Physics 75.100;
 Mathematics 69.107★ and 69.117★;
 Computer Science 95.102★ and 95.105★;
 one of Chemistry 65.100, Biology 61.100 or 61.101 or Geology 67.100;
 one arts or social science course.

Second Year

Physics 75.211★, 75.222★, 75.235★, 75.236★;
 Computer Science 95.106★, 95.202★, 95.203★, 95.204★;
 Mathematics 69.207, 69.217★.

Third Year

Physics 75.338★, 75.361★, 75.362★, 75.386;
 one of Physics 75.307★ or 75.308★;
 Computer Science 95.303★, 95.386★;
 one arts or social science course.

Fourth Year

Physics 75.437★;
 one of Physics 75.407★ or 75.477★;
 Computer Science 95.384★, 95.401★;
 two computer science half courses at the 200 level or above;
 Physics 75.499 or Computer Science 95.480★ and 95.481★;
 one free option.

Double Honours Program: B.Sc. Honours

Mathematics and Physics

Program advisers are J.E. Hardy and M. Rahman.

Entrance Criteria

Successful completion of First year with a B+ or better in Mathematics 69.102, 69.112 and Physics 75.100, or permission of both departments.

Course Requirements**First Year**

- (a) Mathematics 69.102, 69.112;
- (b) Physics 75.100;
- (c) Chemistry 65.100 or Biology 61.100;
- (d) one arts or social science elective.

Note:

It is highly recommended that Computer Science 95.103★ be taken in the First year in addition to the above courses.

Second Year

- (a) Mathematics 70.200, 70.210, 70.260;
- (b) Physics 75.211★, 75.222★, 75.235★, 75.342★;
- (c) one half-course arts or social science elective.

Third Year

- (a) Mathematics 70.301★, 70.302★, 70.310;
- (b) Physics 75.307★, 75.338★, 75.361★, 75.362★;
- (c) Mathematics 70.345★ or Physics 75.381★; a half course in mathematics or physics at the 300 level;
- (d) Mathematics 70.307★ together with Physics 75.388★, or Physics 75.386.

Fourth Year

- (a) one mathematics course at the 400 level (or equivalent);
- (b) Physics 75.437★, 75.447★, 75.477★, 75.478★;
- (c) two half courses at the 300 or 400 level in mathematics or physics;
- (d) Honours project in mathematics or physics (half course);
- (e) one half-course arts or social science elective.

Graduate Program

Candidates for the Doctor's and Master's degrees are accepted for full-time work in physics under the supervision of members of the department. The requirements and general regulations are given in the Graduate Studies and Research Calendar.

Courses Offered

Physics 75.010

Pre-University Physics

Day division: Lectures three hours a week, laboratory, demonstrations and problems three hours a week.

Physics 75.100

Introductory Physics

This course introduces mechanics, the properties of matter, thermodynamics, electricity and magnetism, wave motion, optics, acoustics and some modern topics. A balance is maintained between depth and range.

Prerequisites: Mathematics 69.006★ and 69.007★ or equivalent, Physics 75.010, or permission of the department. Science students must at least be concurrently registered in Mathematics 69.107★.

Day and Evening divisions: Lectures three hours a week, laboratory three hours a week.

Physics 75.105

Introductory Physics

An alternative First-year course for students who lack the prerequisite for Physics 75.100 or who intend to

take their major work in a department not requiring Physics 75.100.

Prerequisite: Mathematics 69.006★ and 69.007★ or equivalent.

Day division: Lectures three hours a week, laboratory three hours a week.

Physics 75.190

Introduction to Astronomy

A survey course in astronomy, astrophysics and cosmology, giving a descriptive treatment of the known stellar, galactic and extra-galactic systems. A review of the modern ideas concerning the structure, origin and evolution of the universe. Fields of current interest in astronomy, including the study of quasars, pulsars and supernovae are discussed. Additional topics include the development of space-age astronomy and studies of the possible existence of extraterrestrial life. A 10-inch telescope is available for student use.

Evening division: Two one-and-a-half hour lectures a week.

Physics 75.195

Physics of Music

The physics of musical phenomena. Sound production, propagation, frequency, intensity. Characteristics of musical sounds, pitch, harmonics, attack. Musical instruments, qualities and behaviours, organ, piano strings, brass, etc. The ear, physiology, behaviour limitations. Building acoustics. Electronic recording reproduction and production of music. Primarily for non-science Majors and Honours students.

Prerequisites: Permission of the department. Some knowledge of either music and musical notation, or elementary physics is desirable.

Not offered 1982-83.

Physics 75.211★

Mechanics and Properties of Matter

Classical mechanics of a particle and rigid body. Classical properties of matter. Relativistic mechanics. Prerequisites: Physics 75.100, Mathematics 69.107★ and 69.117★ or 69.127★ or Mathematics 69.102 and 69.112. (Physics 75.105 is also acceptable provided a minimum grade of B- is obtained.)

Text: Kittel, Knight and Ruderman, *Mechanics*.

Day division, First term: Lectures three hours a week, laboratory three hours a week.

Evening division, First term: Two one-and-a-half hour lectures a week, laboratory three hours a week.

Physics 75.220

Introduction to Astrophysics

This is a self-contained course intended as an introduction to modern astronomy and astrophysics for students with prior knowledge of introductory physics. Various topics such as spectroscopy and elementary nuclear physics are introduced and applied to astrophysical problems such as stellar structure and evolution. Topics of current interest including pulsars, quasars and black holes are discussed. The last part introduces modern cosmology.

and discusses the observations on the universe which have led to the "big-bang" picture of its origin. There is normally some observational work associated with the course. Prerequisite: Physics 75.100 or 75.105 or permission of the department.

Evening division: Two one-and-a-half hour lectures a week.

Physics 75.222★

Wave Motion and Optics

Physical optics based on electromagnetic theory, oscillator model for dispersion, absorption, scattering, Huygen's principle, reflection and transmission as coherent scattering. Interference, coherence length, diffraction, polarization, double refraction. Geometrical optics.

Prerequisites: Physics 75.100, Mathematics 69.107★ and 69.117★ or 69.127★ or Mathematics 69.102 and 69.112. (Physics 75.105 is also acceptable provided a minimum grade of B- is obtained.)

Day division, Second term: Lectures three hours a week, laboratory three hours a week.

Physics 75.235★

Electricity and Magnetism

The theory of electric and magnetic fields is covered in some detail. Electrostatics, field intensities in various configurations of charges, Gauss' law, electrostatic energy. Dielectric materials, dipoles, dipole-dipole interaction, molecular polarizability. Steady currents, properties of electrical conductors. Magnetic effects of currents and motion of charges in electric and magnetic fields. Time varying currents, electromagnetic induction. Magnetic materials and magnetic measurements. D.C. and A.C. circuit theory. Resonant circuits. Prerequisites: Physics 75.100, Mathematics 69.107★, and 69.117★ or 69.127★ or 69.102 and 69.112 (Physics 75.105 is also acceptable provided a minimum grade of B- is obtained).

Day division, First term: Lectures three hours a week, laboratory three hours a week.

Physics 75.236★

Physics of Electrical and Electronic Measurements I

Basic measuring devices, the oscilloscope; impedances, bandwidth, noise; vacuum tubes, transistors, useful approximations for circuit design; feedback, amplifier, oscillator; operational circuits; digital circuits and measuring devices. Lectures emphasize the physical basis and useful approaches to instrument use and design. Laboratory emphasizes modern digital instrumentation.

Prerequisite: Physics 75.235★.

Day division, Second term: Lectures three hours a week, laboratory three hours a week.

Evening division, Second term: Two one-and-a-half hour lectures a week, laboratory three hours a week.

Physics 75.291★

Physics of the Environment I

The study of physics is essential to the understanding of many contemporary environmental problems. This

course examines energy transformations which directly or indirectly are the sources of much pollution. Among the topics considered are the use of fossil, bio mass, solar and nuclear-energy sources; thermodynamical and practical limits to efficiency; thermal pollution; radioactivity and the effects of radiation; growth in energy use and estimates of reserves; the need for conservation and control.

Prerequisite: Physics 75.100 or 75.105 or permission of the department.

Evening division, First term: Lectures three hours a week.

Physics 75.292★

Physics of the Environment II

This course can be taken as a continuation of Physics 75.291★ or independently. It carries forward the study of the relationship of physical principles to environmental problems. Topics considered include: air pollution, its measurement, abatement and possible effects on climate; transportation problems and alternatives; noise pollution, its measurement and possible consequences; communication.

Prerequisite: Physics 75.100 or 75.105 or permission of the department.

Evening division, Second term: Lectures three hours a week.

Physics 75.300

Third-Year Laboratory

The student is expected to complete a small number of projects. These are closely supervised at the beginning of the year, but the student is encouraged to become as independent as possible. Some of the fields for which apparatus is available are: physical optics, optical spectroscopy, electronics, digital techniques, nuclear spectroscopy, cosmic rays, microwaves, solid state phenomena, electrical measurements. Laboratory Techniques: Basic technical operations (mechanical, electronics, etc.) used in the design and construction of research apparatus. Students with satisfactory competence in shop techniques may be excused from this part of the course.

Prerequisite: Permission of the department.

Day division: Laboratory and seminar six hours a week, workshop three hours a week.

Physics 75.301★

Advanced Physics Laboratory for Non-Physics Science Students

This course is designed to initiate students into the use of instrumentation and help them understand the physical principles involved in making key measurements. In consultation with an adviser from the student's Major department, the instructor of this course will endeavour to design the program to meet the needs of each student. Available apparatus as in Physics 75.300.

Prerequisite: Permission of the department.

Day division, First term: Laboratory and seminar six hours a week.

Physics 75.302★

Advanced Physics Laboratory for Non-Physics Science Students

This course is designed to initiate students into the use of instrumentation and help them understand the physical principles involved in making key measurements. In consultation with an adviser from the student's Major department, the instructor of this course will endeavour to design the program to meet the needs of each student. Available apparatus as in Physics 75.300.

Prerequisite: Permission of the department.

Day division, Second term: Laboratory and seminar six hours a week.

Physics 75.307★

Selected Experiments from Physics 75.300

Prerequisite: Permission of the department.

Day division, First term: Laboratory and seminar six hours a week.

Physics 75.308★

Selected Experiments from Physics 75.300

Prerequisite: Permission of the department.

Day division, Second term: Laboratory and seminar six hours a week.

Physics 75.335★

Physics of Electrical and Electronic Measurements II

Analysis of a selection of currently important electronic devices using such concepts as Fourier analysis, noise, the transmission line: lock-in amplifier, analog to digital converter, charge sensitive detector, etc. Interfacing and programming small computers. The physical basis of operation and of limitations are emphasized.

Prerequisite: Physics 75.236★ or permission of the department.

Day division, First term: Lectures three hours a week.

Physics 75.338★

Electromagnetism

Vector notation, vector algebra, divergence and Stokes' theorems, the Laplacian, electrostatic field and magnetostatics. Examples involving Laplace's and Poisson's equations; vector potential; Faraday's laws of induction; Maxwell's equations. Propagation of plane electromagnetic waves in vacuum and dielectric media.

Prerequisite: Physics 75.235★ or permission of the department.

Text: Lorrain and Corson, *Electromagnetic Fields and Waves, Second Edition*.

Day division, Second term: Three hours a week.

Physics 75.342★

Heat and Thermodynamics

Heat and kinetic theory, methods of thermodynamics, and applications of laws of thermodynamics.

Prerequisites: Physics 75.100 (Physics 75.105 is also acceptable provided a minimum grade of B- is obtained), Mathematics 69.107★, and 69.117★ or

69.127★, or 69.102 and 69.112.

Day division, Second term: Lectures three hours a week.

Physics 75.361★

Modern Physics

The course is designed to provide a logical transition from classical to modern physics. Elements of special relativity. Kinetic theory of gases; determination of the mass and charge of subatomic particles. Rutherford scattering, atomic models. Failure of classical mechanics. Photoelectric effect and Compton scattering. Bohr's theory of the hydrogen atom. Atomic energy states, optical and x-ray spectra. X-ray scattering and diffraction. Elements of nuclear physics and particle physics.

Prerequisites: Physics 75.211★, 75.222★, 75.235★

Mathematics 69.207★, 69.208★, 69.217★ or Mathematics 69.202, 69.217★, or permission of the department

Day division, First term: Lectures three hours a week

Physics 75.362★

Elements of Quantum Mechanics

Analysis of interference experiments with waves and particles; fundamental concepts of quantum mechanics, Schrodinger equation; angular momentum atomic beams; hydrogen atom; atomic and molecular spectroscopy; Pauli principle; simple applications in the physics of elementary particles.

Prerequisite: Physics 75.361★, or permission of the department.

Day division, Second term: Lectures three hours a week.

Physics 75.364★

Modern Physics

This course is designed primarily for engineering students and for students not majoring in physics. Rapid review of classical physics; special relativity. Particle aspects of electromagnetic radiation. Wave aspects of material particles. Atomic structure. Production of x-rays and x-ray spectra. Molecular binding, solid state physics; nuclear physics. Applications; fission and fusion reactors, coherent optics (lasers etc.), and semi-conductors. Brief description of cosmic rays and elementary particle physics.

Prerequisites: Physics 75.100 or 75.233★ and Mathematics 69.201 for engineering students, or permission of the department.

Day division, Second term: Lectures three hours a week.

Physics 75.381★

Mathematical Physics I

Vector calculus; curvilinear coordinates; irrotational solenoidal vector field; theorems of Gauss, Stokes introductory fluid mechanics. Introduction to Lagrangian and Hamiltonian mechanics; Poisson brackets tensors and dyadics; rigid body rotations; coupled systems and normal coordinates; relativistic dynamics.

Prerequisites: Physics 75.211★, 75.222★, 75.235★

Mathematics 69.207★, 69.208★, 69.217★, or permission of the department.

Day division, First term: Lectures three hours a week.

Physics 75.386

Introduction to Theoretical Physics

Theoretical techniques common to all branches of modern physics are introduced. Particular emphasis is placed on methods used in quantum mechanics with problems selected from wave propagation, electromagnetic theory, scattering theory and reactor physics. These include Fourier series and integrals, elementary generalized functions, contour integration, residue calculus, Fourier and Laplace transforms, methods for solving linear ordinary and partial differential equations, and Green's functions.

Prerequisite: Physics 75.211★, 75.222★, 75.235★, Mathematics 69.207★, 69.208★, 69.217★, or permission of the department.

Day division: Lectures three hours a week.

Physics 75.388★

Mathematical Physics II

Linear differential equations of second order. Fourier series and integrals, elementary generalized functions; Fourier and Laplace transforms; Green's functions, with applications; boundary value problems.

Prerequisites: Physics 75.381★ or Mathematics 69.345★ or 70.345 (may be taken concurrently); Mathematics 69.307★, or permission of the department.

Day division, Second term: Lectures three hours a week.

Physics 75.400

Fourth-Year Laboratory

The student is expected to complete detailed projects involving some original planning both in concept and experimental technique. Projects are similar to Physics 75.300 but are of a more sophisticated nature.

Prerequisite: Physics 75.300 or 75.307★ or 75.308★.

Day division: Laboratory and seminar six hours a week.

Physics 75.407★

Selected Experiments from Physics 75.400

Prerequisite: Physics 75.300 or 75.307★ or 75.308★.

Day division, First term: Laboratory and seminar six hours a week.

Physics 75.408★

Selected Experiments from Physics 75.400

Prerequisite: Physics 75.300 or 75.307★ or 75.308★.

Day division, Second term: Laboratory and seminar six hours a week.

Physics 75.421★

Astronomy and Astrophysics

Introduction to stellar astronomy, binary stars, stellar atmospheres, variable stars, stellar structure, stellar evolution, introduction to radio astronomy, interstellar matter and gaseous nebulae, supernovae and pulsars, galactic structure, quasars, cosmology.

Prerequisites: Physics 75.361★ and 75.362★, or permission of the department.

Evening division, First term: Lectures three hours a week.

Physics 75.428★

Modern Optics

Diffraction theory, coherence, Fourier optics, spatial filtering; holography and its applications; laser theory: stimulated emission, cavity optics, modes; gain and bandwidth; design and characteristics of atomic and molecular gas lasers.

Prerequisites: Physics 75.361★ and 75.362★, or permission of the department.

Day division, First term: Lectures three hours a week.

Physics 75.435★

Physics of Sensing and Imaging

Introduction to the physical basis, operation, optimization and essential limitations of a selection of sensing devices. Particular attention is paid to common features such as noise, bandwidth, sensitivity and quantum limitations. The approach, when appropriate, stresses Fourier transforms. Examples are chosen from radar and remote sensing: geophysical techniques of magnetic and gravitational surveys, nuclear magnetic resonance, squids, parametric amplifiers; non-destructive testing with ultrasound, including medical application; fundamentals of photography, photomultipliers and image intensifiers. Computer reconstruction of images will be presented.

Prerequisites: Physics 75.335★ or permission of the department.

Day division, Second term: Lectures three hours a week.

Physics 75.437★

Electromagnetic Radiation

Electromagnetic wave propagation in a vacuum, dielectrics, conductors, and ionized gases, reflection, refraction, polarization at the plane boundary between two media; waveguide and transmission line propagation; dipole and quadrupole radiation fields; antenna systems. Electromagnetic mass, radiation pressure. Tensor notation, transformation of the electromagnetic fields.

Prerequisites: Physics 75.338★, 75.381★, and 75.386 (except for mathematics and physics Double Honours students), or permission of the department.

Text: Lorrain and Corson, *Electromagnetic Fields and Waves*.

Day division, First term: Lectures three hours a week.

Physics 75.447★

Statistical Physics

Equilibrium statistical mechanics and its relation to thermodynamics. Maxwell-Boltzmann, Bose-Einstein and Fermi-Dirac statistics are derived, and applied in appropriate physical situations. Fluctuations. Kinetics and transport processes, including the Boltzmann transport equation and some of its applications.

Prerequisites: Physics 75.342★, 75.361★, 75.362★, and 75.477★ to be taken concurrently, or permission of the department.

Day division, First term: Lectures three hours a week.

Physics 75.458★

Solid State Physics

An introduction to solid state physics. Topics to include crystal structure, phonons and lattice vibrations, conductors, semiconductors, insulators and superconductivity.

Prerequisites: Physics 75.361★ and 75.362★ or permission of the department.

Day division, Second term: Lectures three hours a week.

Physics 75.462★

Particle Physics

Description of properties of elementary particles; pions, kaons and baryons. Conservation laws, invariance principles and quantum numbers. Resonances observed in final state interactions. Three body phase space; Dalitz plot SU_3 symmetry scheme for classifying elementary particles, mass formulae and electromagnetic mass differences. Weak interactions; decay of neutral kaons; CP violation in neutral K decays.

Prerequisites: Physics 75.477★, or permission of the department.

Day division, Second term: Lectures three hours a week.

Physics 75.468★

Nuclear Physics

Ground state properties of nuclei, nuclear forces, nuclear levels. Qualitative treatment of Fermi gas model, liquid drop model, shell model and collective model. Alpha, beta and gamma radioactivities, Fission. Passage of particles through matter. Particle detectors. Elements of neutron physics and nuclear reactors.

Prerequisites: Physics 75.361★ and 75.362★, or permission of the department.

Day division, Second term: Lectures three hours a week.

Physics 75.477★

Introduction to Quantum Mechanics I

This course concentrates mainly on the basic interpretative postulates of quantum mechanics. These fundamental concepts are applied to simple one-dimensional problems, and angular momentum theory.

Prerequisites: Physics 75.362★, 75.386, or permission of the department.

Day division, First term: Lectures three hours a week.

Physics 75.478★

Introduction to Quantum Mechanics II

Scattering theory and application; bound state problems; approximation methods.

Prerequisites: Physics 75.477★, or permission of the department.

Day division, Second term: Lectures three hours a week.

Physics 75.481★

Diffusion and Flow Phenomena

Continuity equation; flow equations; diffusion of thermal neutrons (collisional energy transfer, scattering probability, statistical energy degradation); Fermi age-velocity theory; fast neutron flow equation; thermal multiplication pile; criticality criteria; solutions of flow and continuity equations: neutron flow (moderation by graphite block.) Also given as Physics 75.553★ (Reactor Physics I).

Prerequisites: Physics 75.381★, 75.386, or permission of the department.

Not offered 1982-83.

Physics 75.497★

Fourth-Year Project

Same as Physics 75.499 except that it extends over the First term only. (See Physics 75.499 for details.)

Prerequisite: Permission of the department.

Day division, First term: A minimum of six hours laboratory or private study a week.

Physics 75.498★

Fourth-Year Project

Same as Physics 75.499 except that it extends over the Second term only. (See Physics 75.499 for details.)

Prerequisite: Permission of the department.

Day division, Second term: A minimum of six hours laboratory or private study a week.

Physics 75.499

Fourth-Year Project

These are advanced projects of an experimental or theoretical nature with an orientation towards research. A written progress report, by mid-term for Physics 75.497★, 75.498★, and by mid-year for Physics 75.499, must be submitted to the student's supervisor prior to the last day for withdrawal from the course. A written and an oral report will be required at the conclusion of the project.

Prerequisite: Permission of the department.

Day division: A minimum of six hours laboratory or private study a week.

B.Sc. Honours in Psychology

The Department of Psychology offers a program leading to the Honours Bachelor of Science degree. Full details of the department's offerings may be found in the Faculty of Social Sciences section of the calendar beginning on p. 246. Required courses for the B.Sc. with Honours in psychology, in the sequence in which it is strongly suggested they be taken, are as follows:

First Year

Mathematics 69.107★ and 69.117★ or 69.127★ (or equivalent prerequisites for 69.250 or for 69.217★ and 69.257★);

two of Biology 61.100 or 61.101, Chemistry 65.100, Physics 75.100 or 75.105;

Psychology 49.100 as the social science elective;
one additional credit from science, social sciences or arts.

Required courses beyond First year, and the sequence in which it is strongly suggested they be taken, are as follows:

Second Year

Psychology 49.200★, 49.220★, 49.250★, and 49.270★;

Mathematics 69.250 (or 69.217★ and 69.257★ for students planning to take further courses in mathematics);

one credit from arts or social sciences other than psychology;

one optional credit.

Note:

Students who wish to substitute Psychology 49.305 in must offer in 4 a course above the First-year level in psychology, mathematics, chemistry or physics chosen with the approval of the Department of Psychology.

Third Year

one Honours seminar sequence credit (Psychology 49.325, 49.355★ and 49.356★, or 49.375★ and 49.376★);

one of Psychology 49.201★, 49.202★, or 49.204★ and one of Psychology 49.300★, 49.301★, 49.302★ or 49.303★;

one optional credit in psychology;

one credit in arts or social sciences other than psychology;

one credit above the First-year level in biology, mathematics, chemistry or physics.

Fourth Year

1. Psychology 49.498;

2. one credit in psychology chosen from the following science continuation courses: Psychology 49.221★, 49.222★, 49.251★, 49.252★, 49.255★, 49.272★, 49.321★, 49.327★, 49.330★, 49.331★, 49.380★;

3. one optional credit in psychology;

4. one credit above the First-year level in biology, mathematics, chemistry or physics;

5. one optional credit.

Interdisciplinary



Introduction

The subject areas and specific courses listed in this section of the calendar include:

-) courses supervised and/or administered by one of the four undergraduate faculties, but which are available as important areas of concentration to students registered in programs offered by other faculties;
-) courses offered by members of more than one discipline or faculty available to all students (subject to restrictions outlined within the course descriptions themselves and the regulations of the faculty in which the student is registered);
-) listings of courses offered by some or all of the faculties, grouped together by the general subject area they address;
-) a description of the services offered by the Centre for Applied Language Studies; and
-) (p. 444) a list of courses given by specified departments that are offered chiefly for students who are not registered in Majors, Honours or Combined programs within the department offering the courses so listed. These are called "Courses for Non-Majors."

With the exception of "Courses for Non-Majors", the subject/discipline areas are listed alphabetically in this section.

African Studies

Interdisciplinary Committee on African Studies

The Committee on African Studies, made up of faculty members with research and teaching interests in Africa, acts as a co-ordinating unit for activities in this area. (Chairman 1982-83: D.R.F. Taylor, Geography and International Affairs.)

Courses on Africa

Although there is no degree program in African Studies at Carleton, there is a strong teaching and active research interest. Courses relating to Africa have been given in various departments and schools for many years and students can select these courses as part of their degree programs.

Students may also submit a pattern of courses of African Studies for a B.A. (Directed Interdisciplinary Studies), according to the procedures described for this degree in the calendar, p. 131.

Detailed descriptions of the courses below can be found in the various departmental listings. Courses at the 500 level are described in the Calendar of the Faculty of Graduate Studies and Research.

Courses Offered

Economics

- 43.456 Economic Development
- 43.555★ The Economics of Development

Geography

- 45.329★ Geography of Development
- 45.330★ Developing Nations of Inter-Tropical Africa
- 45.520★ Rural-Urban Interaction in Africa (46.575★)
- 45.540★ Territory and Territoriality

History

- 24.275 History of Africa (not offered 1982-83)

International Affairs

- 46.545★ Conflict in Southern Africa
- 46.575★ Rural-Urban Interaction in Africa (45.520★)

Political Science

- 47.310 Government and Politics in Africa
- 47.414★ Theory and Practice in Third World Development
- 47.415★ Selected Problems in Third World Development
- 47.482★ International Politics of Africa
- 47.517★ Selected Problems in African Politics
- 47.545★ Public Administration in Developing Countries
- 47.581★ Foreign Policies of African States (46.545★)

Sociology and Anthropology

Anthropology courses

- 54.362 Contemporary Societies of Africa
- 54.517 Sub-Saharan African Ethnography
(not offered 1982-1983)

General Information

Individual departments at Carleton have offered courses about Asia for many years. The University is a member of the Shastri Indo-Canadian Institute and the home of the executive secretariate of the Canadian Asian Studies Association. The Norman Paterson School of International Affairs and the Paterson Centre also support graduate studies and research on Asia.

The growing importance for the West of the peoples and societies of Asia has promoted a gradual increase in the courses on Asia and related activities on campus. No degree program for Asian studies exists but members of the Committee for Asian Studies — created by faculty members in 1970 to co-ordinate courses and research work — offer a wide variety of courses about Asia. Committee members are available to advise students in Major or Honour's programs in their departments. Students may also submit a coherent pattern of courses selected from the list below for a B.A. (Directed Interdisciplinary Studies), according to the procedures described for this degree in the calendar, p. 131.

Members of the Committee

Robert Bedeski (*Political Science*)
 V.K. Chari (*English*)
 David Chung (*Religion*)
 Nalini Devdas (*Religion*)
 H. Edward English (*Economics*)
 E. Peter Fitzgerald (*History*)
 A.M. Gillmor (*Music*)
 S.G. Haider (*Architecture*)
 J. Keil (*Sociology-Anthropology*)
 David B. Knight (*Geography*)
 Leonard Librande (*Religion*), *Chairman*
 K. Marwah (*Economics*)
 S.B. Park (*Economics*)
 Eugene Rothman (*Religion*)
 Peter Slater (*Religion*)
 John Strong (*History*)
 V. Subramanian (*Political Science*)
 John Sigler (*International Affairs*)
 Elliot Tepper (*Political Science*)
 David Van Praagh (*Journalism*)
 A.I. Wallace (*Geography*)

Courses Offered

All prerequisite conditions prescribed for these courses must be met. Detailed course descriptions are given under the appropriate department listing in this calendar. Descriptions for graduate courses can be found in the Graduate Studies and Research Calendar.

Economics

- 43.456★ The Economics of Development
- 43.457★ International Aspects of Economic Development
- 43.555★ The Economics of Development

Geography

- 45.332★ Cultural Geography of the South West Pacific
- 45.360★ Soviet Union
- 45.395★ Selected World Regional Problems
- 45.540★ Territory and Territoriality

History

- 24.222 East Asian Civilization
- 24.278 The Middle East: 1798 to the Present
- 24.361★ The Russian Empire
- 24.372★ Imperialism and Colonialism in North Africa and the Near East, 1798-1962
- 24.385★ Modern China
- 24.386★ Modern Japan

Journalism

- 28.421C Specialized Reporting (*Van Praagh*)
- 28.540 International Reporting (*Van Praagh*)

Music

- 30.315 Music Cultures of the World (Elementary Ethnomusicology)

Political Science

- 47.312 Government and Politics of East Asia
- 47.315 Government and Politics of South and South East Asia
- 47.332★ East Asian Political Thought — China, Japan and Korea
- 47.483★ Foreign Policies of Major East Asian Powers
- 47.518★ State, Revolution and Reform in East Asia

Religion

- 34.104★ Religious Traditions in the Middle East
- 34.105★ Hindu Yoga and the Buddhist Middle Way
- 34.106★ Religious Thought and Practice in China and Japan
- 34.204 The Hindu Tradition: Studies in The Nature of Human Consciousness
- 34.205 The Buddhist Middle Way: Its Indian Development
- 34.206 Religion and Philosophies of East Asia
- 34.208 Islam
- 34.278 The Middle East: 1798 to the Present
- 34.320★ Selected Problems in Indian Thought
- 34.325★ Zen (Ch'an) Buddhism
- 34.342★ Selected Problems in Islam
- 34.350 Modern Jewish Thought
- 34.116 Introduction to Arabic
- 34.117 Introductions to Sanskrit
- 34.217 Readings in Sanskrit Literature

Faculty of Graduate Studies and Research

International Affairs

- 46.526 Integration in Developing Countries
- 46.536 Problems in the Middle East
- 46.555 Development Problems in South and South
East Asia

General Information

In integrated science studies a student can create a logically coherent and structured program integrating a strong base of science studies with substantial work in a second discipline in another faculty (e.g. engineering, computer science, political science, economics, journalism). Committee members assist the individual to construct a suitable program of courses.

There are nearly as many different patterns as there are students in the program. Some areas of study (combining both science and non-science components) that are available through the program include environmental sciences, science and management studies, behavioural sciences, information sciences, and premedical studies. Additional information can be found in the program description in the Faculty of Science listings. See pp. 398-399.

Interdisciplinary Courses

Arts and Social Sciences

Humanities 10.100

An examination of selected works, from Biblical times to the present, illustrating the various dominant views on the nature of man and his attempts to understand himself and the world about him.

Prerequisite: First-year standing or higher.

Not offered 1982-83.

Humanities 10.200★

An examination of selected works illustrating various dominant views on the nature of man and his attempts to understand himself and the world about him in the context of the twentieth century as seen from points of view of history, philosophy, social science and literature.

Prerequisite: Second-year standing or higher.

Not offered 1982-83.

Interdisciplinary 04.288

Introduction to Women's Studies

A survey course, designed to increase the student's understanding of the position of women in contemporary society. The course offers an introduction to such issues as biological and cultural sex differentiation, women and literature, women and religious institutions, women and politics, women and social and health services and women and the law. A brief introduction to the intellectual and social origins of feminism and a survey of women's place in Western European history provides a context for examining women's position in contemporary society.

Evening division: Lectures three hours a week.

D. Gorham, J. Vickers

Interdisciplinary 04.390

The Literature of Existentialism

A study of the origins, development, and principal characteristics of existentialist literature as the paramount expression of the writer's concern with *la condition humaine*. (Also listed as English 18.390.) All assigned readings will be in English.

Prerequisite: Permission of the Department of English.

Not offered 1982-83.

Science

Science 60.100

Man in His Environment

This course is designed to acquaint students in arts, social sciences and engineering, with the methodology of science in approaching a problem. Included is a general description of the aims and methods of experimental science with an emphasis on environmental and ecological problems. The historical aspects of scientific discoveries are examined, particularly those that are influencing present society. Particular attention is directed to the interactions of science and

society and to man's influence and impact on the natural environment. In a framework of the natural sciences, emphasis is on the limits of the natural systems in which man is a member.

Day division: Lectures three hours a week.

H.H.J. Nesbitt

Interdisciplinary Science 00.200

Physical Anthropology (Introduction to the Study of Prehistoric Man)

This course is designed to acquaint students of the Second and Third years (who need not have taken any previous courses in biology) with the evolutionary history of man. The lectures and demonstration periods make extensive use of the University's large collection of casts of the fossils that have been found to date and upon which the present history of the descent of man is based. Persons intending to take this course are advised to consult with the instructor in the spring before beginning the course for a list of the suggested reading.

H.H.J. Nesbitt

Technology, Society, Environment Studies

Our society increasingly faces problems requiring communication among specialists of different disciplines. This is at least in part a result of increasing specialization of people and jobs. The multidisciplinary problems raised by the interaction of an industrial society with its environment, its resource base, and its complex technical systems are addressed by three courses organized by the Technology, Society, Environment Committee. These courses develop the multidisciplinary perspective through problem units on topics including energy, the industrial revolution, pollution, transportation, political regulation of technology, and the consumer society concept, and through team projects which bring together students working in different disciplines. The three courses are Technology, Society, Environment 59.300, 59.401★ and 59.402★. They are described on pp. 439-441.

Other Courses

African Studies, see p. 432.

Asian Studies, see p. 433.

Medieval Studies, see p. 438.

Urban Studies, see p. 442.

Women's Studies, see p. 443.

Directed Interdisciplinary Studies, B.A.

For information about the B.A. Directed Interdisciplinary Studies program see p. 131.

Officers

Janice Yalden, Associate Dean of Arts, *Acting Director*
P.J. Roster (*Spanish*)
C.S. Jones (*Linguistics*)
Aviva Freedman (*Linguistics*)

General Information

The Centre for Applied Language Studies exists to foster the development of activities in language teaching and learning, including research and publication. The Centre functions by providing links between those units which have a service function in common, and co-ordinates activities in language studies for specific and functional purposes.

The Centre comprises four units: the English Language Program, the Language Resource Centre, the Writing Tutorial Service and the Multicultural Teaching Advisory Service.

English as a Second Language

The English Language Program offers instruction in English as a Second Language through intensive and regular programs of study. See course descriptions on p. 152 of this Calendar.

Language Resource Centre

The Language Resource Centre houses print and non-print materials for language learning; the language laboratories are located in the Centre. It offers specialized courses in many foreign languages; these courses vary in length and intensity and are designed to meet the special language requirements of particular groups.

Writing Tutorial Service

The Writing Tutorial Service offers a flexible and multi-faceted approach to the teaching of writing at the University. The program consists of individualized tutorials, supplementary workshops on style, mini-courses on the principles of academic writing in general, and seminars on the finer points of discipline-specific writing (such as the writing of law essays and examinations). In addition, the service is regularly called on to deal with special writing problems arising in specific courses or disciplines by designing individual ancillary programs in response to, and in consultation with, the instructors in those disciplines.

Multicultural Teaching Advisory Service

Members:

M. Ciavolella, *Italian*
M.A. Giella, *Spanish*
C. Persi Haines, *Italian*
G. Panico, *Italian*
P.J. Roster, *Spanish*
C.S. Jones, *Linguistics*
L. Young, *English Language Program*

The Multicultural Teaching Advisory Service provides advice and guidance to individuals, associations or schools who are working in programs that provide educational experience of a multicultural sort, or who are already actively engaged in such programs. Teaching in this kind of setting usually involves both language and culture, and is geared specifically to the particular needs of the students the program is designed to serve. MTAS can assist in defining more clearly both short- and long-term objectives for a given program, and by providing specialized courses in conjunction with the School of Continuing Education.

Medieval Studies

Interfaculty Committee on Medieval Studies

The Committee on Medieval Studies, made up of faculty members with research and teaching interests in the Middle Ages, acts as a co-ordinating unit for activities in this area. The Committee is a member of the Standing Committee on Centers and Regional Associations (CARA) of the Medieval Academy of America. (Chairman 1982-83: D. le Berrurier, Art History.)

Courses on the Middle Ages

The University offers a wide range of courses in the humanities and social sciences relating to the Middle Ages and students can select these courses as part of their degree program.

Students may also submit a coherent pattern of courses in Medieval Studies for a B.A. (Directed Interdisciplinary Studies), in accordance with the procedures described for this degree in the calendar, p. 131. Assistance in planning such a pattern is available from members of the Committee on Medieval Studies.

Courses Offered

Art History

- 11.220★ Western Medieval Art
- 11.320★ Byzantine Art
- 11.325★ Russian Art
- 11.327★ Gothic Art
- 11.420★ Early Christian and Byzantine Manuscript Illustration
- 11.421★ Early Medieval and Byzantine Ivories
- 11.425★ Byzantine and Russian Icon Painting

Classics

This department offers several courses in Latin

English

- 18.322 Middle English
- 18.327 Chaucer and the Allegorical Tradition

French

- 20.261★ La littérature du Moyen Age
- 20.333★ Histoire de la langue

German

- 22.430 Medieval Language and Literature

History

- 24.205 England during the Middle Ages
- 24.305 Cultural and Intellectual History of the Middle Ages
- 24.405 Selected Problems in Medieval History

Italian

- 26.210★ Italian Civilization I: Literature, Arts and Society in Italy from the Thirteenth Century to the Renaissance
- 26.310 Italian Literature I: From the Thirteenth Century to the Beginning of the Renaissance
- 26.400 Dante

Law

- 51.491★ Tutorial in Law

Music

- 30.210★ Music in the Middle Ages

Philosophy

- 32.225 Reason and Revelation
- 32.416★ Medieval Philosophy

Psychology

- 49.380★ Special Topics in Psychology: Psychology from the Middle Ages

Religion

- 34.305 Cultural and Intellectual History of the Middle Ages (24.305)

Spanish

- 38.415★ Medieval Spanish Literature from the Origins through 1300
- 38.416★ Medieval Spanish Literature, 1300-1500

Members of the Committee

Chairman

P.D. van der Puije (*Engineering*)

Members

P. Kruus (*Chemistry*)

J. Lukasiewicz (*Engineering*)

A. Podgorecki (*Sociology and Anthropology*)

P. van der Puije (*Engineering*)

B.A. Syrett (*Engineering*)

J. Taylor (*History*)

M.E. Welsh (*Classics*)

Two Student Representatives

Associated Members

Several members of the Faculty serve on the TSE Studies Committee as Associated Members.

General Information

It is becoming increasingly apparent that:

1. the future of the Western societies depends on their ability to cope with the complex problems resulting from the interactions of Technology, Society and the Environment (TSE);

2. the effectiveness of the democratic political process is contingent upon the perception and comprehension of these phenomena by the electorate;

3. because of the complexity and the wide range of the problems involved, their understanding cannot be gained through specialized education in traditional disciplines. A multidisciplinary approach is required.

The multidisciplinary courses listed below, offered under the direction of the TSE Studies Committee, seek to fulfil this need. They are designed to provide students from all faculties with a solid basis for understanding the major problems of industrialized society, and with firsthand appreciation through research project work, of the complexities involved. The TSE courses are open to all students beyond the First year; these courses are especially recommended for students at the Third- and Fourth-year levels. Students enrolled in three-year programs, however, who would like to take these courses are encouraged to take one in the Second year.

TSE 59.300 deals with the major aspects of the interaction of technology and society. It also addresses the problems of resources and of the impact of technology on the natural environment. TSE 59.401★ is concerned with the assessment of the impact of technology on society and the environment while 59.402★ deals with forecasting methods.

The courses are given by members of various faculties and guest speakers, and research project work is carried out in small groups of students from different disciplines under the direction of faculty advisers. Project topics are assigned according to students' preferences.

The University offers a wide range of courses on and relating to TSE Studies, and students can select these as part of their degree program.

Students may also submit a coherent pattern of courses in TSE Studies for a B.A. (Directed Interdisciplinary Studies), in accordance with the procedures described for this degree in the calendar, p. 131. Assistance in planning such a pattern is available from members of the TSE committee.

Courses Offered

Technology, Society, Environment 59.300

Introduction to Problems of Industrial Society

A course intended to introduce students from all faculties to the study of major problems of industrialized society. Topics include: historical perspective of technology and industrialization, technology as a motive force in history and as an element in culture, ecological perspective, population and resources, impact on the natural environment, modernization process including the developing countries, technology as an agent of global integration. Analysis is based on case studies. A research project comprises a significant portion of the course work.

Prerequisite: Registration in Second or higher year or equivalent.

Lectures and workshops three hours a week.

P. Kruus, J. Lukasiewicz

Technology, Society, Environment 59.401★

Technology and Society: Assessment

The course examines the complexities and practice of evaluating the relationship and impact of technology on society and the physical environment. Specific topics include: retrospective assessment of large projects; technological horror stories — cases of mis-assessment; necessary aspects of an assessment project; examples of Canadian technology assessments. A project in the last portion of the course comprises a significant portion of the course work.

Prerequisites: Registration in Third or higher year or equivalent.

Texts: Lawless *Technology and Social Shock*; Gibbons and Voyer, *A Technology Assessment System*; Berger, *The Report of the Mackenzie Valley Pipeline Inquiry*.

First term: Lectures and workshops three hours a week.

J. Lukasiewicz

Technology, Society, Environment 59.402★

Technology and Society: Forecasting

The objective of the course is to introduce the participants to the forecasting methods that are used in government and industry, often successfully. Topics are also covered that should indicate how an activity such as forecasting fits into the context of industrial society. Roughly half the time in the course is used to present various methods used in forecasting: trend analysis, Delphi techniques, normative forecasting, scenario development, and modelling. These methods are illustrated by in-class projects and take-home assignments. This coverage of methods is interspersed with discussion of related topics, such as: successes (and failures) of forecasts in history, science fiction writers as forecasters, ideological views of forecasting and the future, analysis of the processes of invention and innovation, and technology policy. A significant number of guest lecturers are involved in the course. Prerequisites: Registration in Third or higher year or equivalent.

Texts: Feather, *Through the 80s*; Barney, *The Global 2000 Report to the President, Volume I*.

Second term: Lectures and workshops three hours a week.

P. Kruus

Other Related Courses

Other courses related to the TSE area offered by various departments and schools within the University are listed for the convenience of students. Detailed course descriptions are given under the appropriate faculty or department. Please note that all prerequisite conditions prescribed for these courses must be met.

Architecture

76.208★ Theories of Urban Design 1

76.209★ Theories of Urban Design 2

76.302★ History of Canadian Environment

76.324★ Social Environment Systems (also Sociology 53.335★)

76.423★ The Human Development/Built Environment Interface

Biology

61.190 Biology and Man

61.391★ Biology in Society

Chemistry

65.371★ Environmental Chemistry

Classics

13.235 Ancient Science and Technology

Computer Science

95.102★ Introduction to Computers

Economics

43.363★ Introduction to Economic Development

43.365★ The Economics of Planning

43.385★ Economics and Natural Resources

Engineering

82.333★ Urban Planning (also Geography 45.433★)

82.434★ Transportation (also Geography 45.434★)

English

18.207 Literature and the Sciences

Film Studies

19.333 Film and Society

Geography

45.102★ Geographic Analysis of Contemporary Issues: Environment, Economy and Resource Use

45.211★ Geomorphology and Environmental Management

45.230★ The Cultural Landscape

45.231★ Conflict and Accord in the Modern World

45.329★ Geography of Development

45.330★ Developing Nations of Intertropical Africa

45.333★ Land Use, Regional Development and Planning in Canada

45.334★ Renewable Resource Planning in a Local Area

45.351★ Northern Lands

45.404★ Environmental Impact Assessment

45.405★ Problems of Environmental Impact Assessment

45.445★ Land Resource Use

Geology

67.111★ Geology, the Environment and Man I

67.112★ Geology, the Environment and Man II

67.204★ Earth, Resources and Society

History

24.329★ Canadian Urban History

24.330★ Social History of Canada

24.345★ American Urban History

24.354 Women and Society: 1700 to the Present

Interdisciplinary (Science)

60.100 Man in His Environment

Interdisciplinary Studies (Arts)

10.100 Humanities

10.200★ Humanities

Journalism

28.300 The Modern Environment

Law

51.205 Introduction to Company Law

51.380 Law of Environmental Quality

51.325★ Consumer Law

51.355★ Law Reform and the Protection of Life

Mass Communication

- 7.111 Introduction to Mass Communication
- 7.211 The Mass Media in Modern Society

Philosophy

- 2.200 Science and Man
- 2.284★ Society, Value and Technology
- 2.332★ Issues in the Philosophy of Science
- 2.333★ Science and the Structure of Society

Physics

- 5.291★ Physics of the Environment I
- 5.292★ Physics of the Environment II

Political Science

- 7.403★ Politics and the Media

Psychology

- 9.210★ Introduction to Social Psychology
- 9.211★ Social Problems

Religion

- 4.200 The Encounter of Science and Religion

Sociology and Anthropology

- 3.246★ Industrial Sociology
- 6.253★ Introduction to Human Ecology
- 3.254★ Urban Sociology
- 3.260★ Community
- 3.312★ Science and Society
- 4.333★ Economic Anthropology
- 6.360 Social Change and Modernization
- 3.380 Social Policy
- 3.338 Social Response to the Built Environment

Urban Studies

General Information

Many urban studies courses are offered at Carleton. A student must fulfil the stated requirements of a disciplinary Major, Honours or Combined pattern but at the same time it is possible for the student to design a sound interdisciplinary pattern of study that will provide a broader understanding of urban phenomena and processes than would be gained from the point of view of a single discipline.

The Interfaculty Committee on Urban Studies has drawn up the following list of undergraduate courses in urban studies currently offered at Carleton. Students should consult the disciplinary listings in the calendar for detailed course descriptions and prescribed prerequisites; note that these *may* be waived, at the discretion of the school or department concerned.

Urban Studies are finely interwoven with the wider universe of knowledge. Accordingly, certain courses listed relate to important background issues as well as to explicit urban content and many other courses not listed (including on-campus and field courses) may provide valuable support.

Co-ordinator 1982-83: J.E. Tunbridge, Department of Geography.

Courses Offered

Architecture

- 76.205★ Theories of Landscape Design I
- 76.208★ Theories of Urban Design 1
- 76.209★ Theories of Urban Design 2
- 76.308★ Theories of Environmental Design 3B
- 76.328★ The Architecture of Urban Space
- 78.310★ Land Development
- 78.319★ Workshop: Land Development
- 78.323★ Workshop: Landscape Architecture
- 78.330★ Community Development
- 78.339★ Workshop: Community Development
- 78.340★ City Organization and Planning Processes
- 78.344★ Urban Design Practice
- 78.345★ Workshop: Urban Design
- 78.349★ Workshop: City Organization and Planning Processes

Art History

- 11.302★ Canadian Architecture
- 11.305★ American Architecture
- 11.350★ British Art and Architecture

Economics

- 43.480 Research Seminar in Urban Economics

Engineering

- 82.333★ Urban Planning
- 82.434★ Transportation
- 82.435★ Transportation Geography

Geography

- 45.220★ Geography of the Global Economy
- 45.221★ Geographical Challenges of Contemporary Economies
- 45.320★ The Canadian City: Internal Structure and Contemporary Problems
- 45.321★ Systems of Cities: Global Perspectives
- 45.333★ Land Use, Regional Development and Planning in Canada
- 45.421★ Selected Themes in Urban Geography
- 45.433★ Urban Planning
- 45.442★ Transportation Geography

Geology

- 67.417★ Engineering Soil Mechanics and Engineering Geology

History

- 24.329★ Canadian Urban History
- 24.330★ Social History of Canada
- 24.345★ American Urban History
- 24.346★ American Immigration and Ethnic Groups

Law

- 51.374 Local Government Law

Physics

- 75.291★ Physics of the Environment I
- 75.292★ Physics of the Environment II

Political Science

- 47.302★ Canadian Municipal Government
- 47.303★ Canadian Urban Politics

Sociology and Anthropology

- 56.253★ Introduction to Human Ecology
- 53.254★ Urban Sociology
- 53.260★ Community
- 53.338 Social Response to the Built Environment
- 54.373★ Urban Anthropology
- 53.456★ Workshop in Urban Sociology

Members of the Committee

Anne Squire (*Religion*), Chairman
Marilyn J. Barber (*History*)
John Barnes (*Law*)
Lorna Beresford (*Engineering*)
Monica Boyd (*Sociology-Anthropology*)
Elinor Burwell (*Psychology*)
Frances Cherry (*Psychology*)
Diane Dubrule (*Philosophy*)
Mary Jane Edwards (*English*)
Linda Freeman (*Political Science*)
Deborah Gorham (*History*)
N.E.S. Griffiths (*History*)
Jane Jenson (*Political Science*)
Jared Keil (*Sociology-Anthropology*)
Barbara Lecker (*English*)
Helen Levine (*Social Work*)
Sally Luce (*Commerce*)
Patricia Smart (*French*)
Caryll Steffens (*Sociology-Anthropology*)
Jill McCalla Vickers (*Political Science*)
Eveline Voldeng (*French*)

General Information

Women's studies courses have been offered at Carleton since 1971-1972. Such courses have developed at Carleton, as they have elsewhere, in response to the fact that the experience of woman has not received adequate attention from the academic community.

At Carleton, women's studies courses are offered by several departments, and faculty members and graduate students are pursuing research in the area in many departments. The Interfaculty Committee on Women's Studies provides co-ordination for these activities. In addition to its co-ordinating functions, the committee encourages, throughout the University, an awareness of an obligation on the part of all academic disciplines to include a fuller treatment of women's contribution and experience than has been offered in the past.

Although there is no women's studies degree program at Carleton, students may submit a pattern of Women's Studies for a B.A. (Directed Interdisciplinary Studies), according to the procedures described for this degree in the Calendar, p. 131.

Courses Offered

Although the Committee itself offers no courses, the following course offerings are listed here for the convenience of students. Detailed course descriptions are given under the appropriate faculty and department.

Faculty of Arts

Comparative Literature

17.506T2 The Women around the Turn of the Century

English

18.383 Studies in Canadian Fiction: Works by Women Writers

History

24.354 Women and Society: 1700-Present

24.459 Selected Problems in the History of Women and the Family: From the Industrial Revolution

Religion

34.201 Women in Religious Traditions

Faculty of Graduate Studies and Research

School of Social Work

52.506★ Women and Welfare

52.528★ Feminist Counselling

Interdisciplinary

04.288 Introduction to Women's Studies

Faculty of Social Sciences

Law

51.301★ Women and the Legal Process

Political Science

47.313★ Women in Politics: A Comparative Perspective

47.318★ Women in Developing Polities: A Comparative Assessment

Psychology

49.361★ Psychology of Women

Sociology-Anthropology

53.247 Women in Society

Courses for Non-Majors

The courses that appear in the following list are offered exclusively or primarily for students specializing in another discipline. This section is intended to assist students to find courses of interest which would otherwise be difficult to locate in the calendar. Descriptions for these courses are contained in the appropriate departmental section.

Biology

- 61.190 Biology and Man
- 61.216★ Human Genetics and Evolution
- 61.262★ Ecology in Architecture
- 61.393★ Biology and Development of Renewable Resources

Chemistry

- 65.107 The Chemistry of Art and Artifacts
- 65.222 Organic Chemistry

Classics

- 13.100 Some Aspects of Greek and Roman Civilization
- 13.102★ Aspects of Greek Civilization
- 13.103★ Aspects of Roman Civilization
- 15.116 Beginning Modern Greek

Comparative Literature

- 17.361 Studies in Literary Genres
- 17.400 Analytical Approaches to Literature
- 17.401 Selected Topic in Comparative Literature

Economics

- 43.201★ Introduction to Microeconomic Theory and Analysis
- 43.211★ Introduction to Macroeconomic Theory and Analysis

English

- 18.100 English Authors from Chaucer to T.S. Eliot
- 18.101 English and Continental Texts
- 18.102 Form and Tradition
- 18.110★ (Management Studies 42.110★) The Elements of Writing
- 18.111★ (Management Studies 42.111★) Business Writing
- 18.268 Forms and Conventions of the Cinema
- 18.291 Writing Seminar in Poetry
- 18.293 Writing Seminar in Prose Fiction

French

- 20.100 Elementary French
- 20.101 Introductory Immersion French
- 20.102 Intermediate French (A)
- 20.103 Intermediate French (B)
- 20.106★ Reading French
- 20.108 Advanced French for Non-Majors
- 20.151 French-Canadian Literature
- 20.152 French Literature

Geology

- 67.111★ Geology, the Environment and Man I
- 67.112★ Geology, the Environment and Man II
- 67.204★ Earth, Resources and Society

German

- 22.230 Austrian Culture and History

History

- 24.231 Historical Introduction to Modern Canada

Italian

- 26.210★ Italian Civilization I: Literature, Arts and Society in Italy from the Thirteenth Century to the Renaissance
- 26.211★ Italian Civilization II: Literature, Arts and Society in Italy from the Unification to the Present Time
- 26.220 Background to the Study of Italian Literature (English section)
- 26.350★ Italian Literature in Translation

Law

- 51.201 The Elements of Law

Mathematics and Statistics

- 69.107★ Elementary Calculus I
- 69.117★ Elementary Algebra
- 69.127★ Topics in Calculus and Algebra
- 69.131★ Mathematics in Architecture I
- 69.132★ Mathematics in Architecture II
- 69.141★ Gambling I
- 69.142★ Gambling II
- 69.201 Intermediate Calculus
- 69.202 Intermediate Mathematics
- 69.250 Introduction to Statistical Analysis

Music

- 30.100 Introduction to the Music of Western Civilization
- 30.115 Elementary Materials of Music

Physics

- 75.190 Introduction to Astronomy
- 75.195 Physics of Music
- 75.291★ Physics of the Environment I
- 75.292★ Physics of the Environment II
- 75.302★ Advanced Physics Laboratory for Non-Physics Science Students
- 75.364★ Modern Physics

Russian/Ukrainian

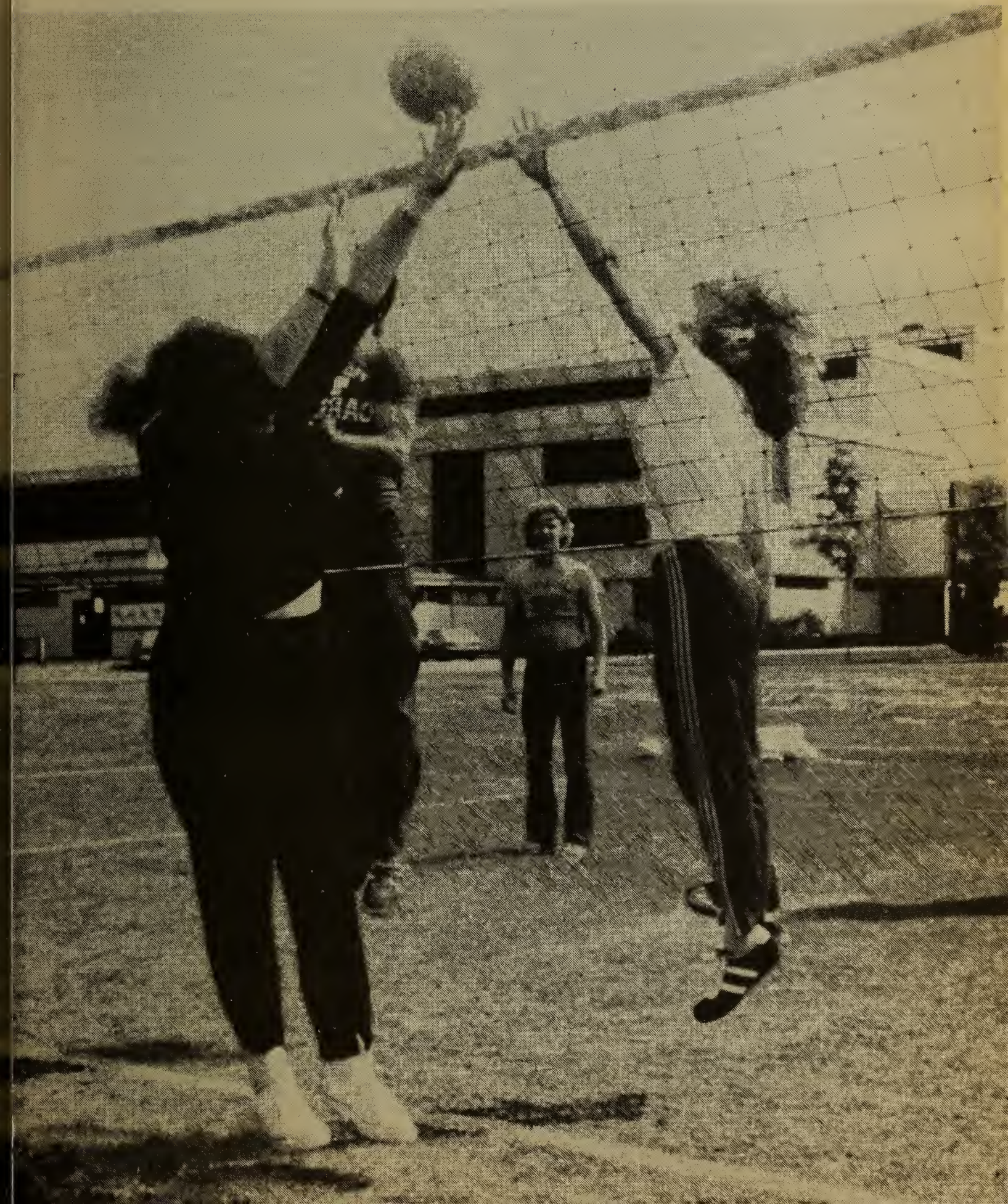
- 36.110 Scientific Russian
- 36.120★ Business Russian I
- 36.121★ Business Russian II
- 36.116 Introductory Ukrainian
- 36.216 Advanced Ukrainian
- 36.290 Twentieth-Century East-European Literature in Translation
- 36.360★ Special Topic: Dostoevsky to Chekhov (in English Translation)
- 36.361★ Special Topic: The Revolution and After (in English Translation)
- 36.390 Slavic or Hungarian Language Tutorial

Science (Interdisciplinary)

- 60.100 Man and His Environment
- 60.200 Physical Anthropology (Introduction to the Study of Prehistoric Man)

Technology, Society, Environment Studies

- 59.300 Introduction to Problems of Industrial Society
- 59.401★ Technology and Society: Assessment
- 59.402★ Technology and Society: Forecasting



Awards for Academic Excellence

Medals

The Governor-General's Medal

Awarded annually to the student standing at the head of the graduating class. Donor: His Excellency the Governor-General of Canada. Established 1952.

The Chancellor's Medal

Awarded annually in the name of the Chancellor of the University to a graduating student of outstanding academic achievement.

University Medals

Awarded annually, when merited, to the graduating students standing highest in arts, science, commerce, journalism, engineering, and architecture. Established 1949.

Senate Medals

Awarded, when merited, to graduating students of outstanding academic achievement. Established 1952.

Medal in Engineering (Ontario Association of Professional Engineers)

Awarded annually, when merited, to the graduating student standing highest in engineering. Established 1961.

Undergraduate Entrance and In-Course Scholarships

Carleton University awards scholarships tenable at the university, in the Winter session of the year of offer, to entrance and in-course full-time undergraduate students who have demonstrated a high potential for university studies. The intention of the scholarship policy is to recognize, attract and provide incentives for excellence. The total value of the scholarship or scholarships awarded is determined by the student's most recent academic standing.

The following entrance scholarships will be offered in 1982-83: Three scholarships with a total possible value of \$10,000 over four years (\$4,000, \$3,000, \$2,000 and \$1,000). The scholarship may be continued each year of full-time enrolment, provided the student maintains A standing. These scholarships require an application, which must be completed and returned to the Awards Office by May 14. Priority will be given to academic performance, but the committee will also consider the applicant's other interests and activities during secondary school.

Seventy scholarships with a total possible value of \$3,000 over three years (\$1,000 per year). The scholarship may be continued for two years of full-time enrolment, provided the student maintains A standing.

One hundred scholarships valued at \$750 for the entrance year only.

One hundred awards valued at \$150 for the entrance year only.

Twelve awards valued at \$250 for the entrance year only, to be given to the top six students entering Carleton from the Ottawa and Carleton Boards of Education. This award will be in addition to any other the student may receive from Carleton.

In-course scholarships are valued at \$1,500, \$1,200, \$900 or \$500. Students are considered on the basis of the grade-point average of the best five full courses (or six for the Faculty of Engineering) taken in the preceding Winter session, providing no core or required courses are eliminated.

All full-time in-course students who have obtained A standing will be named Carleton Scholars.

In order to hold the foregoing entrance or in-course scholarship, a student must be enrolled in five full credits or equivalent (or six for the Faculty of Engineering).

The University also has some undergraduate in-course scholarship funds available to qualified part-time students. Students should submit applications for part-time scholarships to the Awards Office as soon as possible after the final Winter examinations.

Scholarships and awards of varying amounts which are of interest to students in specific programs are listed below:

Architecture

Blok-Lok Limited Scholarship
Cadillac Fairview Scholarship
Lithwick, Johnston and Moy Scholarship
Ontario Association of Architects Awards
Page and Steele School of Architecture Scholarship
Planning and Construction Department of Carleton University's Award in the Building Sciences
James Whenham Award

Arts

A. Andras Memorial Grant
Award of the Embassy of Austria
F. Luella Barrigar Scholarships
Jack Barwick and Douglas Duncan Memorial Scholarship in Art History
Jack Barwick and Douglas Duncan Memorial Scholarship in Music
Bruce Beecher Memorial Award
Landen Dominic Burnett Memorial Award
Carleton University Awards in English
Bertha F. Davis Award in Religion
Awards of the Embassy of France
Awards of the Embassy of the Federal Republic of Germany
Award of the High Commission of India
Allama Mohammad Iqbal Award
Award of the Embassy of Italy
Harry Kelman Memorial Scholarship

Marston LaFrance Memorial Award in English
 Jayashree A. Nagpur Memorial Award
 National Council of Jewish Women of Canada Award
 Ottawa Muslim Women's Auxiliary Award
 Ottawa Women's Canadian Club Scholarship
 Award of the Government of Quebec for Excellence in the Study of French
 Award of the Embassy of Spain
 Award of the Ambassador of Switzerland to Canada
 Awards of the Embassy of the Union of Soviet Socialist Republics
 Wainwright Scholarships
 Wilgar Memorial Award in English
 Gordon J. Wood Scholarships in English
 Hume Wrong Scholarship

Business

Canadian Tire Corporation Scholarship
 Victor S. Castledine Scholarship
 Certified General Accountants Association of Ontario Award for Excellence
 Clarkson, Gordon & Company Award
 Manulife Scholarship in Business
 D.F. McKechnie Award in Accounting
 James Nolan Memorial Award
 Charles Pinhey Award
 Lawrence Segal Memorial Fund
 Thorne, Riddell & Company Scholarships
 Touche, Ross & Company Scholarships
 Xerox Canada Inc. Award

Computer Science

Jamie Corbet Memorial Award
 Datacrown Inc. Scholarship
 Digital Equipment of Canada Limited Award of Merit
 Honeywell Information Systems Scholarship
 RCA Scholarship

Engineering

American Society for Metals Award in Engineering
 Association of Professional Engineers' Scholarships
 Dr. John H. Chapman Prize in Communications Engineering
 Hawker Siddeley Canada Ltd. Engineering Scholarship
 Roderick C. McDonald Memorial Scholarship in Engineering
 Planning and Construction Department of Carleton University's Award in the Building Sciences
 James J. Rattray Memorial Scholarship
 Regent Vending and Amusements Limited Centennial Scholarship
 Regent Vending and Amusements Limited Scholarship
 Schlumberger Collegiate Award Scholarship
 Harry Stevinson Scholarship in Aeronautical Engineering
 Vered Foundation Scholarships
 Wild Leitz Canada Limited Award in Engineering

Industrial Design

Jack Cook Design Award

Journalism

John E. Bird Memorial Scholarship
 The Rachael Elizabeth Edwards Memorial Award
 Wilfrid Eggleston Award in Journalism
 Bob Farquharson Memorial Award in Journalism
 Blair Fraser Memorial Award for Journalism Graduates
 Margaret Graham Award
 Journalism Writing Style Book Award
 Kingston Whig-Standard Award in Reporting
 Maclean-Hunter Award in Journalism
 National Press Club of Canada Scholarship in Journalism
 Ottawa Citizen Scholarship in Journalism
 Peter Reilly Scholarship
 Roodman Award in Journalism
 Thomson Award for Reporting
 Union Carbide Canada Scholarship
 Kenneth R. Wilson Memorial Award for Journalism Graduates

Science

Berke Scholarship in Chemistry
 Dr. M. Ralph Berke Award in Chemistry
 Director's Award in Biochemistry
 Charles Anthony Blundell Betts Memorial Scholarship in Physics
 J.P. Bickell Foundation Scholarships
 Award of the Canadian Institute of Mining and Metallurgy (Ottawa Branch)
 Canadian Society of Petroleum Geologists Undergraduate Student Award
 Society of Chemical Industry Award
 Chemical Institute of Canada Award
 Chevron Standard Scholarship in Geology
 Clendinnen Scholarship in Biology
 Catherine Daumery Memorial Award for Botanical Collection
 E. Alison Flood Award in Physical Chemistry
 Ian H. Griffith Memorial Scholarships
 Clarence H. Hand Scholarship
 Mildred Susan Henry Scholarship
 Janet M. Holmes Memorial Scholarship
 Dr. Harry Katznelson Memorial Scholarship
 Department of Mathematics Entrance Award
 Betty Nesbitt Memorial Award in Biology
 F.K. North Award in Geology
 Petro-Canada Scholarship
 Richard J. Semple Memorial Award in Mathematics
 L.N. Wadlin Scholarship in Mathematics
 Elizabeth White Memorial Award for Zoological Collection
 Morley E. Wilson Scholarship

Social Sciences

Mrs. George S. Abbott Memorial Award in Law
 Professor T.N. Brewis Scholarship in Applied Economics
 Carswell Company Book Award in Public Law
 Victor S. Castledine Scholarship
 Economics Scholarship
 Ann Smith Freedman Memorial Award

Mr. and Mrs. Louis L. Goldstein Book Award in Law
 Carlisle Hanson Award
 Herbert G. Heron, Q.C. Award in Law
 R.A. MacKay Award in Political Science
 Montreal Trust Company of Canada Award in Law
 Bank of Nova Scotia, Carleton University Branch
 Award in Commercial Law
 Union Carbide Scholarship
 Wreder Foundation Scholarship
 Jessie and Wreford Watson Award in Geography
 Hume Wrong Scholarship

Undergraduate In-Course Scholarships for Part-Time Students

Undergraduate University Scholarships
 University Women's Club of Ottawa Scholarships

Undergraduate Scholarships and Awards

Mrs. George S. Abbott Memorial Award in Law
 Value \$50. To be awarded annually for proficiency in law courses taken at Carleton University to a student planning to enter law school. Donor: Anonymous. Established 1968 in memory of Mrs. George S. Abbott.

American Society for Metals Award in Engineering
 Value \$50. Awarded annually to a student with high standing in the First year of the Engineering course. Donor: Ottawa Valley Chapter, American Society for Metals. Established 1951.

A. Andras Memorial Grant
 Value \$850. To support the cost of a research project or paper undertaken by an undergraduate or graduate student attending Carleton University. This grant is awarded in alternate years for a research project in one of the following areas: (a) Jewish studies; (b) trade union history or the democratic socialist movement in Canada. Endowed 1972 in memory of the late Mr. A. Andras, a member of Carleton's Board of Governors. Revised 1978.

Association of Professional Engineers' Entrance Scholarship

Value \$750. Awarded annually to a student of high proficiency with senior matriculation standing who is entering the Engineering course. Donor: The Ontario Professional Engineers' Foundation for Education. Established 1961.

Association of Professional Engineers' Scholarships
 Value \$375 each. Three scholarships are awarded annually to Engineering students of high proficiency proceeding from one year of course to another in Carleton University. Donor: The Ontario Professional Engineers' Foundation for Education. Established 1961.

Award of the Embassy of Austria
 For excellence in the study of German, a book award is offered annually by the Austrian Embassy in Canada. Established 1960.

Bank of Nova Scotia, Carleton University Branch, Award in Commercial Law

Value \$100. Awarded annually to a student with high standing in courses in the commercial law field. Donor: the Bank of Nova Scotia, Carleton University Branch. Established 1980.

F. Luella Barrigar Scholarships

Awarded annually to students entering Carleton University or proceeding from one year of course to another. Some preference shall be given to students with an interest in music. These scholarships are provided through the bequest of the late Miss F. Luella Barrigar, a teacher of music at the Ottawa Teachers' College. Donor: The late F. Luella Barrigar. Endowed 1981.

Jack Barwick and Douglas Duncan Memorial Scholarship for Art History

Value \$1,075. To be awarded annually to a student or students in the Department of Art History. The Chairman and faculty members of the Department of Art History are to decide each year on the most appropriate disbursement of the award. Donor: Mrs. J.P. Barwick. Established 1972.

Jack Barwick and Douglas Duncan Memorial Scholarship for Music

Value \$1,075. To be awarded annually to a student or students in the Department of Music. The Chairman and faculty members of the Department of Music are to decide each year on the most appropriate disbursement of the award. Donor: Mrs. J.P. Barwick. Established 1972.

Bruce Beecher Memorial Award

Value \$250. Awarded annually on the recommendation of the Department of English to outstanding student(s) in the Major or Honours program in English. Donor: Professor Donald A. Beecher. Established 1979.

Berke Scholarship in Chemistry

Value to be announced. Awarded annually to an outstanding student proceeding to the Second year of an Honours Chemistry program. Donor: Dr. and Mrs. M. Ralph Berke. Established 1981.

Dr. M. Ralph Berke Award in Chemistry

The yield of a \$500 fund is awarded each year, if merited, on the recommendation of the Department of Chemistry for a prize to be awarded to an outstanding student majoring in chemistry proceeding from the Second to the Third year of the degree course. Donor: Dr. M. Ralph Berke. Endowed 1956.

Charles Anthony Blundell Betts Memorial Scholarship in Physics

Value \$1,100. Awarded annually, if merited, to a student of high proficiency in physics, entering or continuing in physics Honours or in the Major course, in the Second or subsequent years of the degree course. Donors: Mr. and Mrs. Oliver Betts, Birmingham, England, in memory of their son, Charles Anthony Blundell Betts. Endowed 1964.

J.P. Bickell Foundation Scholarships

The Trustees of the J.P. Bickell Foundation have established in the Department of Geology, Faculty of Science, scholarships for students entering the geological profession, of a possible value of \$3,000 each. The scholarships may be awarded on entrance into the Honours geological sequence at the First, Second or Third-year levels at Carleton University. The scholarships are payable over two or three years depending on the entrance level.

John E. Bird Scholarships

Value to be announced. Two scholarships are awarded annually to outstanding students who are proceeding from one year of course to another in a degree program in journalism. Donor: Estate of Mrs. V. Bird. Endowed 1981.

Director's Award in Biochemistry

Value \$100. Awarded annually to the Fourth-year biochemistry student performing the most distinguished Honours Research project. Donor: Anonymous. Endowed 1981.

Henry Birks and Sons (Ontario) Limited Award

Value \$25. Awarded annually to a Carleton University student with a superior academic record who has contributed substantially to extracurricular activities. Donor: Henry Birks and Sons (Ontario) Limited. Established 1951.

Claude Bissell Scholarships

These scholarships are named in honour of a former President of Carleton University and are awarded to outstanding students entering or proceeding from one year to another of a full-time undergraduate program at Carleton. The scholarship may be renewed for a total of four years provided sufficient academic standing is maintained. Established 1975.

Blok-Lok Limited Scholarship

Value \$250. Awarded annually to a worthy student entering or enrolled in the School of Architecture. Donor: Blok-Lok Limited, Weston, Ontario. Established 1968.

Professor T.N. Brewis Scholarship in Applied Economics

Value \$500. Awarded annually on the recommendation of the Department of Economics to an undergraduate or graduate student in the department. Preference shall be given to a student who has shown aptitude in the field of applied economics. Professor Brewis was a distinguished member of the Department of Economics at Carleton University for twenty five years and is well known for his contributions in the fields of macro-economic and regional economic policy. Donor: Professor T.N. Brewis. Endowed 1981.

Donald William Buchanan Scholarship

Awarded annually for general competition among students entering Carleton University. Donor: The late Donald William Buchanan. Endowed 1967.

Landen Dominic Burnett Memorial Award

Value \$300. Awarded annually to an outstanding student in Art History selected by Dr. David Burnett. Donor: The Vered Foundation. Established 1979.

Cadillac Fairview Scholarship

Value \$500. Awarded annually to a student of superior standing in the School of Architecture at Carleton University. Donor: Cadillac Fairview Corporation. Established 1977.

D. Roy Campbell Scholarship

Awarded annually, under the terms of the will of the late D. Roy Campbell, for competition among students entering Carleton University with high standing in the senior matriculation examinations or the equivalent. Donor: The late D. Roy Campbell. Established 1962.

Henry Campbell Scholarships

Value \$2,000. Two scholarships awarded annually to full-time students entering or progressing from one year to the next at Carleton University. Provided from the estate of the late Edna Alice Campbell. Endowed 1978.

Award of the Canadian Institute of Mining and Metallurgy (Ottawa Branch)

Value \$500. The cash prize mentioned is available annually for an essay submitted by full-time undergraduate students at Carleton University and University of Ottawa only. This cash prize is for the best essay on a subject appropriate to any one of the Institute technical divisions, namely the Coal Division, the Geology Division, the Industrial Minerals Division, the Mechanical/Electrical Division, the Metallurgical Society, the Metal Mining Division and the Petroleum Society of CIM. For the purpose of this competition, an undergraduate student may be one who is registered in a Second, Third or Fourth year of an undergraduate program at the time the essay is submitted. Essays must be submitted to the Chairman of the Geology Department of Carleton or University of Ottawa on or before December 31 of each year. Essays need not be papers prepared exclusively for this competition. They may incorporate in part or entirely other papers presented by students as academic exercises. The use of field data or field observations collected by the student during Summer employment is recommended. Established 1956 and 1974.

Canadian Society of Petroleum Geologists Undergraduate Student Award

An award consisting of a certificate and one-year student membership in the Canadian Society of Petroleum Geologists is given by the society on the recommendation of the Department of Geology, to an undergraduate student who has excelled in fields relating to petroleum geology. Established 1978

Canadian Tire Corporation Scholarship

Value \$500. Awarded annually on the recommendation of the Director of the School of Business to an outstanding student proceeding from one year of course to another in business. Preference will be given to a student who shows ability in the area of management studies and marketing. Donor: Canadian Tire Corporation Limited. Established 1980.

Carleton University Academic Staff Association Scholarship

Value \$1,100. Awarded annually to a student of high proficiency proceeding from one year of course to another in undergraduate studies at Carleton University. Donor: Carleton University Academic Staff Association. Established 1977.

Carleton University Awards in English

Value \$1,000. Awarded annually for four years to students from Ottawa area high schools. Prizes will be given in two categories. The writing award will be given for any one of the following: a play of at least thirty minutes running time; a sheaf of poems; a minimum of at least three short stories (no maximum); or a novel. The essay award will be given for an essay of a length to be determined annually by the department. Candidates may contact the Carleton University English Department for terms of the prizes, though information will be sent yearly to the English Departments of all high schools in the area. In each category, the judges will award a first prize of \$200, a second prize of \$100 and four third prizes of \$50, unless they deem entries to be of insufficient calibre. Donor: Anonymous. Established 1981.

Carling O'Keefe Scholarship

Value \$600. Awarded annually to an outstanding full-time student who is proceeding from one year of course to another at Carleton University. Donor: The O'Keefe Brewing Company Limited. Established 1972.

Carswell Company Book Award in Public Law

Value \$100. Awarded annually to a student with high standing in public law courses. Donor: The Carswell Company Limited. Established 1965.

Victor S. Castledine Scholarship

Value \$500. Awarded annually to a student in economics or business who, in the opinion of the Chairman of the Department of Economics in counsel, has done outstanding work in the area of money, credit and banking studies. Donor: Victor S. Castledine, Esq. Established 1971.

Certified General Accountants Association of Ontario Award for Excellence

Value \$1,000. An annual award for excellence is given on the recommendation of the Director of the School of Business to a student graduating from Carleton University who has displayed outstanding achievement in accounting. The award is composed of a cash award of \$150 plus a credit of \$850 to be drawn down as and when the successful candidate wishes, for the purpose of defraying any fees related to courses in the CGA study program. The first drawdown on the credit must be made not later than three years after the date of notification to the successful candidate. Thereafter, the credit will be valid as long as the person is enrolled in the CGA program in Ontario. Donor: The Certified General Accountants Association of Ontario. Established 1981.

Dr. John H. Chapman Memorial Prize in Communications Engineering

Value \$1,000. Awarded annually, on the recommendation of the Faculty of Engineering, to the Fourth-year student(s) standing highest in the communications areas of the Electrical Engineering program. Donor: Spar Aerospace Limited, Toronto, in memory of the late Dr. John H. Chapman, in recognition of his work and contributions in satellite communications, which resulted in his becoming known as "the father of Canada's space programs." Established 1981.

Society of Chemical Industry Award

A gold key with the crest of the Society of Chemical Industry in front and the name of the winner, course, year and university on back is granted to the student who has the highest standing in the final year of the Honours course in Chemistry. The winner will also receive a year's subscription to the Journal, *Chemistry and Industry*. Donor: Canadian Section, Society of Chemical Industry. Established 1961.

Chemical Institute of Canada Award

Value \$25. Awarded as a book prize to the best student proceeding to the final year of the course leading to the degree of Bachelor of Science with Honours in Chemistry. Donor: The Chemical Institute of Canada. Established 1950.

Chevron Standard Scholarship in Geology

Value \$1,000. Awarded annually to an outstanding undergraduate student who is entering the final year in geology at Carleton University. Preference will be given to a student who has displayed an indicated interest in the field of petroleum exploration. Donor: Chevron Standard Limited. Established 1980.

Clarkson, Gordon & Company Award

Value \$100. Awarded annually to the student with the highest standing in the First year of the business course. Donor: Clarkson, Gordon & Company. Established 1962.

Class of '76 Book Prize

A book prize (or prizes) given on the recommendation of the Director of the School of Business for excellence in the study of Accounting and/or Finance. Donor: Members of the class of '76. Established 1980.

Clendinnen Scholarship in Biology

Value \$150. Awarded annually to an outstanding student proceeding from the Third to Fourth year of the Honours course in biology at Carleton University. Established 1951, in memory of Mr. and Mrs. T.E. Clendinnen, by their daughter.

Commonwealth Holiday Inns of Canada Limited Entrance Scholarship

Value \$250. Awarded annually to a student entering a full-time undergraduate program who has completed the Ontario Secondary School Honour Graduation Diploma (or its equivalent) and has demonstrated a high potential for university studies. Donor: Commonwealth Holiday Inns of Canada Limited. Established 1975.

Duchess of Connaught Scholarship

The yield from the endowment of this historic scholarship has been made available to Carleton University by the Laurentian Chapter, I.O.D.E. The scholarship is to be awarded to an able student entering Carleton University, and may be held until graduation, if merited; at which time a new award will be made. Donor: Laurentian Chapter I.O.D.E. Endowed at Carleton University, 1960.

Jack Cook Design Award

Value \$100. To be awarded annually, if merited, to the student in Third or Fourth year of the School of Industrial Design who submits the most outstanding design of a product or project related to the field of Interior Design. Donor: Mr. Jack Cook. Established 1978.

Naomi Cook Scholarship Fund

Value \$500. Awarded annually to students with high academic standing entering Carleton University. Donor: The late Naomi Cook. Endowed 1967.

Jamie Corbet Memorial Award

Awarded annually, on the recommendation of the School of Computer Science, to an outstanding student who is proceeding from one year to another in the School of Computer Science. Donor: Friends and family of the late Jamie Corbet. Endowed 1981.

Jennie Shibley Cramm Scholarship

Value \$250. Awarded annually to a female student of high proficiency entering Carleton University from Nepean High School, Ottawa. Donor: The late Jennie Shibley Cramm. Endowed 1967.

W.H. Cramm Scholarship

Value \$250. Awarded annually to a male student of high proficiency entering Carleton University from Nepean High School, Ottawa. Donor: The late Jennie Shibley Cramm. Endowed 1967.

Catherine Daumery Memorial Award for Botanical Collection

Value \$50, together with a book prize. Awarded annually, if merited, on the recommendation of the Department of Biology, to a student who has submitted by November 1, an outstanding collection of mounted and identified flowering plants. Donor: Anonymous. Established 1953.

Datacrown Inc. Scholarship

Value \$500. Awarded on the recommendation of the Director of the School of Computer Science to an outstanding Third-year honours student based on marks attained in all computer science courses. Some preference may be given to the individual's all-round leadership in extra-curricular activities. Donor: Datacrown Inc. Established 1981.

Bertha F. Davis Award in Religion

Value \$350. Awarded annually to an outstanding student enrolled in the Major or Honours program in the Department of Religion at Carleton University. Donor: Bertha Florence Davis. Endowed 1977.

De Waan Foundation Award on Arab Problems

Each year for a period of five years from the first year of award, the De Waan Foundation offers a prize for work of appropriate scholarly level by a senior student on the problems of Arab countries. Annual value, \$100. Students wishing to prepare for this award should first consult the Director of the School of Public Administration. Donor: De Waan Foundation, 1960.

Digital Equipment of Canada Limited Award of Merit

Value \$100 and medal. An award is given annually to the student who stands first in the course 94/95.303 Real Time Computing. Donor: Digital Equipment of Canada Limited. Established 1981.

Dobbie Regional Entrance Scholarships

Scholarships will be available for students entering Carleton University, to be divided equally among students from Ontario (except for the City of Ottawa), the Western provinces and the Territories, and Québec and the Atlantic provinces. Donor: The late Jemema Grace Dobbie. Endowed 1967.

Lord Dundonald Chapter, I.O.D.E. Scholarship

Value \$200. Awarded annually to a student of superior standing and general proficiency, entering the final year of a degree course at Carleton University. Donor: Lord Dundonald Chapter, I.O.D.E. Established 1956.

A. Davidson Dunton Scholarships

These scholarships are named in honour of a former President of Carleton University and are awarded to outstanding students entering or proceeding from one year to another of a full-time undergraduate program at Carleton. The scholarship may be renewed for a total of four years provided sufficient academic standing is maintained. Established 1975.

Economics Scholarship

Value \$350. Awarded to the student or students entering the final year of the Honours program of studies, whose record of scholarship, in the opinion of the Department of Economics Scholarship Committee, merits special recognition. Established 1978.

Samuel L. Edelson Scholarship

Value \$250. Awarded annually to an outstanding student who is proceeding from one year of course to another at Carleton University. Donor: Members of the family. Established 1974.

Rachael Elizabeth Edwards Memorial Award

Value \$450. Presented annually on the recommendation of the School of Journalism to an outstanding student who is graduating in the School of Journalism one-year degree program. Preference will be given to a female student who has indicated an interest in pursuing a career in the daily newspaper field. Endowed 1974 in memory of Rachael Elizabeth Edwards, a former student in the School of Journalism

Wilfrid Eggleston Award in Journalism

Value \$500. Awarded to the undergraduate with the best record in the Second-year journalism degree program. This award is named in honour of Professor

Emeritus Dr. Wilfrid Eggleston, former Director of the School of Journalism. Donor: Anonymous. Established 1967.

Bob Farquharson Memorial Award in Journalism
Value \$400. Awarded annually to an outstanding student enrolled in a full-time undergraduate program in the School of Journalism at Carleton University. Preference will be given to a Third-year student who has indicated an interest in pursuing a career in newspaper and magazine journalism. Donors: Canadian Managing Editors Conference and the Toronto Globe and Mail. Established 1980.

E. Alison Flood Award in Physical Chemistry
Awarded annually to the best student in the Second-year physical chemistry course. Student to be selected by the Department of Chemistry on the basis of recommendations of the course instructor and the laboratory demonstrators in the Second-year laboratory. Donors: Friends and former students of the late Dr. E.A. Flood, principal scientist at the National Research Council, who in 1969 became senior demonstrator in the Chemistry Department. Endowed 1980.

Lilian I. Found Award for Poetry
Value \$25. Offered annually for the best lyric of fifty lines or less submitted by an undergraduate of Carleton University by March 15. Details may be obtained from the Department of English. Donor: The late Mrs. Lilian Found. Endowed 1950.

Awards of the Embassy of France
For excellence in the study of French, two book awards are offered annually by the Embassy of France in Canada. Donor: Embassy of France. Established 1978.

Blair Fraser Memorial Award for Journalism Graduates
Value \$325. Offered annually to a journalism student in his or her graduating year who, in the opinion of a board of selection, shows a marked aptitude for and interest in political reporting at the national and international level. Endowed 1969, in memory of Blair Fraser, Ottawa editor of *Macleans Magazine*, by a group of his friends.

Ann Smith Freedman Memorial Award
Value \$100. Awarded to the student in Psychology who has gained the highest standing in the experimental paper in Psychology 49.200 during the academic year. Donors: Mr. and Mrs. Jarvis Freedman. Established 1958.

Jacob Freedman Scholarships
Awarded annually to outstanding students who are proceeding from one year of course to another at Carleton University. Donor: The late Jacob Freedman. Endowed 1967.

Friends of Carleton Scholarships
Scholarships have been provided for general competition among students entering Carleton University at the senior matriculation level. Donor: The Friends of Carleton University. Established 1967.

Awards of the Embassy of the Federal Republic of Germany

For excellence in the study of German, book awards are offered annually by the Embassy of the Federal Republic of Germany in Canada. Established 1955.

Clarence C. Gibson Scholarships

These scholarships are named in honour of a former Chairman of the Board of Governors of Carleton University and are awarded to outstanding students entering or proceeding from one year to another of a full-time undergraduate program at Carleton. The scholarship may be renewed for a total of four years provided sufficient academic standing is maintained. Established 1975.

James A. Gibson Scholarships

Scholarships have been provided for superior students passing into the final year of the undergraduate course at Carleton University. The scholarships are named in honour of Dr. James A. Gibson, former Dean of Faculty of Arts and Deputy to the President of Carleton University. Donor: Carleton University.

David A. Golden Scholarships

These scholarships are named in honour of a former Chairman of the Board of Governors of Carleton University and are awarded to outstanding students entering or proceeding from one year to another of a full-time undergraduate program at Carleton. The scholarship may be renewed for a total of four years provided sufficient academic standing is maintained. Established 1975.

Mr. and Mrs. Louis L. Goldstein Book Award in Law
Awarded annually to a deserving Carleton University student in a law program, on the recommendation of the Chairman of the department. Donors: Mr. and Mrs. Louis L. Goldstein. Established 1975.

Margaret Graham Award

Value \$200. Awarded annually to the undergraduate student with the best overall academic average proceeding from Third to Fourth year of the four-year Bachelor of Journalism program. This award is named in honour of Margaret Graham who was one of the founding members of the Canadian Women's Press Club in 1904. Donor: The Media Club (Ottawa Branch). Established 1977.

J. Lorne Gray Scholarships

These scholarships are named in honour of a former Chairman of the Board of Governors of Carleton University and are awarded to outstanding students entering or proceeding from one year to another of a full-time undergraduate program at Carleton. The scholarship may be renewed for a total of four years provided sufficient academic standing is maintained. Established 1975.

Ian H. Griffith Memorial Scholarships

Value \$1,000. Awarded annually, if merited, to outstanding students proceeding from one year of course to another in a degree program in the Faculty of Science, preferably in the Integrated Science Studies

program, and having some appreciation of the humanities. Donors: Mr. and Mrs. J. Griffith in memory of their son Ian H. Griffith, B.Sc., Carleton 1976.

Clarence H. Hand Scholarship

Value \$200. Awarded annually to a student for excellence in studies in cryptogamic botany. Donor: Anonymous. Established 1972, in honour of the late Clarence H. Hand, a skilled high school teacher and amateur bryologist.

J. Carlisle Hanson Award

Value \$100. Awarded annually to an outstanding student proceeding into a combined Honours program in law and history or economics at Carleton University. Donor: J. Carlisle Hanson. Established 1973.

Hawker Siddeley Canada Inc. Engineering Scholarship

Value \$750. Awarded on the recommendation of the Faculty of Engineering to an outstanding student proceeding from the Third to the Fourth year in Electrical or Mechanical Engineering. Donor: Hawker Siddeley Canada Ltd. Established 1975.

Herbert G. Heron, Q.C. Award in Law

Value \$200. Awarded annually to a student in the Department of Law. Applicants and nominees for this award will be assessed by the Chairman of the Department of Law in conjunction with his committee. Established 1975 in memory of Herbert G. Heron, Q.C.

Janet M. Holmes Memorial Scholarship

Value \$300. Awarded annually, when merited, to a promising student proceeding from the Third to the Fourth year of the Honours chemistry program at Carleton University. Candidates will be selected by the Department of Chemistry. Donors: Professor and Mrs. J.M. Holmes. Established July 1973.

Honeywell Information Systems Scholarship

Value \$1,000. Awarded annually, when merited, to a student or students for proficiency in computer science. Donor: Honeywell Information Systems. Established 1979.

C.V. Hotson Memorial Scholarship

Value \$275. Awarded annually to an undergraduate student who maintains high academic standing and is active in student affairs. Donated by Carleton alumni and other friends in memory of Mr. Hotson, a 1950 Carleton Journalism graduate and former member of the Students' Council who returned to Carleton in 1953 to become administrative assistant to the president and executive secretary of the Alumni Association, a position he held until his death in October, 1960.

Award of the High Commission of India

For excellence in the study of Sanskrit, a book award is offered annually by the High Commission of India. Established 1976.

International House Award

Value \$200. To be awarded to a student attending Carleton University on a student visa in his or her graduating year, who, in addition to maintaining the academic levels of the degree program, has been an

active participant in extracurricular activities in the university. Donor: International House. Endowed 1972.

Allama Mohammad Iqbal Award

Value \$250. Awarded annually on the recommendation of the Department of Religion to an undergraduate student who has shown excellence in the field of Islamic studies. Donor: The Government of Pakistan. Endowed 1982.

Award of the Embassy of Italy

For excellence in the study of Italian, a book award is offered annually by the Embassy of Italy in Canada. Established 1971.

Journalism Writing Style Book Award

Value \$50. Awarded annually as a book prize to a Journalism 28.220 student, the writing style of whose class assignments shows exceptional merit. Donor: Anonymous. Established 1970.

Dr. Harry Katznelson Memorial Scholarship

Value \$120. Awarded annually to an outstanding student proceeding into an advanced year in the Honours biology program. Donors: Friends of the late Dr. Harry Katznelson, B.S.A., M.Sc., Ph.D., F.R.S.C., Director of the Microbiology Research Institute, Federal Department of Agriculture. Established 1965.

Harry Kelman Memorial Scholarship

Value \$250. Awarded annually to an outstanding student in Second year or proceeding from Second to Third year and who is majoring in Art History at Carleton University. Donor: Friends of the late Mr. Harry Kelman. Established 1973.

Marston LaFrance Memorial Award in English

Value \$150. Awarded annually, if merited, on the recommendation of the Department of English to outstanding student(s) entering the Fourth year of the Honours English program at Carleton University. Established 1976 in memory of the late Dr. Marston LaFrance, former Dean of the Faculty of Arts, Division I.

Abraham and Dora Lithwick Prize

Value \$50. Awarded annually for ten years to a handicapped student at Carleton University. Donor: Mrs. Dora Lithwick. Established 1981.

Lithwick, Johnston and Moy Scholarship

Value \$300. Awarded annually to an outstanding student who has completed the Third year of course in the School of Architecture at Carleton University. Donors: Lithwick, Johnston and Moy, Architects. Established 1968.

Francis C.C. Lynch Scholarships

Scholarships have been established for open competition among students entering or proceeding from one year to another in arts, social sciences, science, business, journalism, engineering or architecture. Donor: The late Francis C.C. Lynch. Endowed 1967.

Gavin Scott Macfarlane Memorial Scholarship

Value \$700. Awarded annually to an outstanding student, preferably in Honours, who is proceeding from one year of course to another at Carleton University.

First donated 1957, by Mrs. G.S. Macfarlane in memory of her husband, Lieutenant-Colonel Gavin Scott Mcfarlane.

R.A. MacKay Award in Political Science

Value \$150. Awarded annually by the Department of Political Science to a student in good standing in accordance with terms that the department may from time to time establish. Donor: The late Dr. R.A. MacKay. Endowed 1977.

Chalmers Jack Mackenzie Scholarships

These scholarships are named in honour of a former Chancellor of Carleton University and are awarded to outstanding students entering or proceeding from one year to another of a full-time undergraduate program at Carleton. The scholarship may be renewed for a total of four years provided sufficient academic standing is maintained. Established 1975.

Maclean-Hunter Award in Journalism

Value \$1,000. Awarded annually to a student entering the one-year program in Journalism for university graduates mainly on the basis of previous academic performance. Donor: Maclean-Hunter Publishing Company Limited. Established 1967.

Murdoch Maxwell MacOdrum Scholarships

These scholarships are named in honour of a former President of Carleton University and are awarded to outstanding students entering or proceeding from one year to another of a full-time undergraduate program at Carleton. The scholarship may be renewed for a total of four years provided sufficient academic standing is maintained. Established 1975.

ManuLife Scholarship in Business

Value \$1,000. Awarded annually to an outstanding student entering the Bachelor of Commerce program at Carleton University. Donor: The Manufacturers Life Insurance Co. Established 1976.

Department of Mathematics and Statistics Entrance Award

Value \$500. One or more annual awards for a student or students entering the First year of an Honours or Major program in the Department of Mathematics and Statistics at Carleton University. The selection of the recipient or recipients will be based on the results of an annual Competition for High School Students, with the decision being recommended by the Chairman of the Department in consultation with the Director of Student Awards and the Department's High School Liaison Committee. Donor: Members of the faculty in the Department of Mathematics and Statistics. Established 1973.

Roderick C. McDonald Memorial Scholarships in Engineering

Value \$300. Awarded annually to an engineering student of high proficiency entering the Fourth year of course. Established by the University in memory of the late Roderick C. McDonald, who before his death in 1961, was a member of the Faculty of Engineering.

D.F. McKechnie Award in Accounting

A book prize to be awarded, when merited, to a student in business for proficiency in the study of accounting. Donor: D.F. McKechnie, C.A. Endowed 1951.

Dr. Frederick William Charles Mohr Scholarships

Scholarships have been made available for annual competition among students entering Carleton University or proceeding from one year of course to another and who come from communities within the following Ontario and Quebec counties. Ontario: Renfrew, Russell, Prescott, Glengarry, Stormont, Dundas, Grenville, Carleton, Lanark, Nipissing, Leeds; Quebec: Pontiac, Gatineau, Hull, Papineau, Argenteuil, Temiskaming. These awards are provided through the bequest of the late Dr. F.W.C. Mohr. Donor: The Frederick W.C. Mohr Estate. Endowed 1963.

Montreal Trust Company of Canada Award in Law

Value \$500. Awarded annually to a student who, in the opinion of the Department of Law, has shown overall outstanding academic achievement in studies in law. Donor: The Montreal Trust Company of Canada. Established 1978.

Jayashree A. Nagpur Memorial Award

Value \$50. Awarded annually on the recommendation of the Department of English to an outstanding student in the English program at Carleton University. Donor: Anant L. Nagpur. Established 1976.

National Council of Jewish Women of Canada Award

Value \$50. Awarded on the recommendation of the Department of Religion to a student achieving high standing in the area of Judaic studies. Donor: National Council of Jewish Women of Canada, Ottawa Section. Established 1973.

Betty Nesbitt Memorial Award in Biology

Value \$650. Awarded annually to a student entering the Third year of a Bachelor's degree program in Biology, who, in the opinion of the Department has shown exceptional promise in the field of Biology. Preference will be given to a student in a faculty other than the Faculty of Science. Donors: Friends of the late Mrs. H.H.J. Nesbitt. Endowed 1976.

James Nolan Memorial Award

Value \$600. Awarded annually to a student in business for proficiency in the study of accounting. Donors: The family and friends of the late James P. Nolan, B.Com. Carleton 1977. Endowed 1977.

F.K. North Award in Geology

A book is awarded annually, on the basis of outstanding performance, to a student in final year of the Honours geology program at Carleton University. This award was provided by friends and colleagues of Ken North, in recognition of his nineteen years of service as a renowned teacher of geology at Carleton University, and in particular recognition of his timely and articulate statements that led to careful re-evaluation of Canada's petroleum reserves. Donors: Friends and colleagues of Dr. North. Endowed 1981.

Michael Oliver Scholarships

These scholarships are named in honour of a former President of Carleton University and are awarded to outstanding students entering or proceeding from one year to another of a full-time undergraduate program at Carleton. The scholarship may be renewed for a total of four years provided sufficient academic standing is maintained. Established 1979.

Ontario Association of Architects Awards

Value \$500. Awarded annually to a deserving student enrolled in the Second year in the School of Architecture an award of \$250; and to a deserving student enrolled in the Third year of the School of Architecture an award of \$250. Donor: Ontario Association of Architects. Established 1972.

City of Ottawa Scholarship for Disabled Persons

Value \$1,000. Awarded annually to a disabled student entering or enrolled in a full-time program of studies at Algonquin College of Applied Arts and Technology, Carleton University or University of Ottawa. The award may be continued for up to four years, provided the candidate maintains satisfactory academic standing. Applicants for the scholarship must be disabled, according to the United Nations definition. Priority shall be given first to students of academic merit and second, for financial need. Donor: City of Ottawa. Established 1981.

Ottawa Citizen Scholarship

A scholarship valued at \$2,400 awarded annually, if merited, to a student entering Carleton University from a high school in any one of the following counties in the Ottawa district: nine in Ontario (Carleton, Dundas, Glengarry, Grenville, Lanark, Prescott, Renfrew, Russell and Stormont) and four in Quebec (Gatineau, Hull, Papineau and Pontiac). A student admitted with senior matriculation standing will receive \$800 per year for a period of three years, always provided that the student is registered as a regular full-time student at Carleton University and maintains a satisfactory academic standing. Donor: The Ottawa Citizen. Established 1955.

Ottawa Citizen Scholarship in Journalism

Maximum value \$2,400. Awarded annually to a student entering First year of journalism. The winner will receive \$600 a year until graduation provided the student is registered as a full-time student at Carleton University and maintains a satisfactory academic standing in the journalism program. Donor: The Ottawa Citizen. Established 1969.

Ottawa Ladies' College Scholarships

Provided for annual competition among undergraduates for the various disciplines. Endowed 1967.

Ottawa Muslim Women's Auxiliary Award

A book is awarded annually to the recommendation of the Department of Religion to a student achieving high standing in the area of Islamic studies. Donor: The Ottawa Muslim Women's Auxiliary. Established 1981.

Ottawa Women's Canadian Club Scholarship

Value \$600. Awarded annually to an outstanding student who is proceeding from one year of course to another in the undergraduate Canadian Studies Program. Endowed 1946. Revised 1977.

The Page and Steele School of Architecture Scholarship

Value \$300. Awarded annually to an outstanding student enrolled in the School of Architecture at Carleton University. Donor: Page and Steele Architects. Established 1967.

Charles and Helen Pattenson Scholarships

Awarded annually to students entering Carleton University who have demonstrated a high potential for university studies. Mr. Pattenson was engaged in engineering research and development in the Radio and Electrical Engineering Laboratories of the National Research Council, Ottawa, Canada, from 1940 to his retirement in 1976. Donors: the late Charles F. and Helen M. Pattenson. Endowed 1980.

Lester Bowles Pearson Scholarships

These scholarships are named in honour of a former Chancellor of Carleton University and are awarded to outstanding students entering or proceeding from one year to another of a full-time undergraduate program at Carleton. The scholarship may be renewed for a total of four years provided sufficient academic standing is maintained. Established 1975.

Petro-Canada Scholarship

Value \$800. Awarded annually to a full-time student entering Third or Fourth year studies in geology. The candidate must be a Canadian citizen, and may not be in receipt of any other major award in the same year. Donor: Petro-Canada. Established 1981.

Charles Pinhey Award

Awarded to a student entering the First year of business at Carleton University from a secondary school in the Ottawa-Carleton Regional Municipality. The sum of \$300 will be awarded in the student's first year, and \$200 for each succeeding year provided the student is registered as a full-time student at Carleton University and maintains scholarship levels in the business program. This award will be based on high academic performance and on financial need. Donor: The Ottawa Board of Trade. Established 1974.

Planning and Construction Department of Carleton University's Award in the Building Sciences

Value \$200. Awarded annually to an undergraduate student in engineering or architecture to assist with the cost of an energy-related research project. The Dean of Engineering will select the recipient in each year. Preference shall be given to the student whose graduate year project is deemed to have the most merit in furthering the efficient use of energy in the field of building science. Donor: Planning and Construction Department of Carleton University. Endowed 1980.

National Press Club of Canada Scholarship in Journalism
A sum equal to tuition fees to be awarded annually to a student entering the final year of journalism or news photography course in a Canadian college or university. The name of one Carleton University student will be submitted annually to a selection panel of National Press Club members. Donor: The National Press Club of Canada. Established 1965.

Award of the Government of Quebec for Excellence in the Study of French

A book award is offered annually by the Minister of Cultural Affairs of the Province of Quebec. Established 1968.

James H. Rattray Memorial Scholarship

Value \$500. Awarded annually to a student entering First-year Engineering at Carleton University. Donor: The late James H. Rattray, M.C. Endowed 1961.

RCA Scholarship

Value \$200. Awarded annually on the recommendation of the Director of the School of Computer Science to a worthy in-course student enrolled in the School of Computer Science. Donor: RCA Inc. Established 1981.

Regent Vending and Amusements Limited Scholarship
Value \$250. Awarded annually to an outstanding student in the Department of Electronics. Donor: Regent Vending and Amusements Limited. Established 1954. Revised 1981.

Regent Vending and Amusements Limited Centennial Scholarship

Value \$200. Awarded annually to an outstanding student in the Department of Electronics. Donor: Regent Vending and Amusements Limited. Established 1967. Revised 1981.

Peter Reilly Scholarship

Value \$600. Awarded annually to a student entering either the Third or Fourth year of a degree course in the School of Journalism who shows talent, aptitude and concern for journalistic disciplines. Preference will be given to a student entering Fourth year who has demonstrated a potential for effective use of the medium of television, current affairs and/or documentary programs. Donors: Friends of the late Peter Reilly. Endowed 1978.

Roodman Award in Journalism

Value \$50. Awarded annually for excellence in reporting to a Second or Third year student in the School of Journalism. Donors: Mr. and Mrs. Herman S. Roodman. Established 1965. Revised 1980.

James and Jane Fraser Roy Scholarships

Awarded annually, if merited, to outstanding students proceeding from one year of course to another in a degree program at Carleton University. Donor: The late Jean Roy. Endowed 1975.

J. Lansing Rudd Scholarship

Awarded annually to a superior student progressing from one year of course to another at Carleton University. Donor: The late J. Lansing Rudd. Endowed 1967.

St. Patrick's College Scholarship

Awarded annually to an entrance or in-course student or students in the humanities and social sciences, with preference being given to students with physical disabilities. Endowed in 1980 to perpetuate the name and traditions of St. Patrick's College.

Schlumberger Collegiate Award Scholarship

Value \$6,000. Two scholarships, valued at \$2,500 each, are awarded annually, on the recommendation of the Dean of Engineering to outstanding students in the engineering program. One of the students must be entering Third or Fourth year of the program. The balance of the fund shall be used to support engineering student activities such as participation in design contests and attendance at conferences. Donor: Schlumberger Foundation. Established 1981.

Lawrence Segal Memorial Fund

Value \$15. Established as a book prize for a student enrolled in the School of Business. Donors: The friends of the late Lawrence J. Segal, B.Com. Carleton, 1961. Endowed 1970.

Richard J. Semple Memorial Award in Mathematics

Value \$450. Awarded annually to an outstanding student enrolled in an Honours mathematics program and proceeding to Third or Fourth year of studies at Carleton University. Donors: Friends and family of the late Richard J. Semple. Endowed 1977 in memory of Richard J. Semple, a long-time faculty member of the Department of Mathematics.

Hyman Soloway Scholarships

These scholarships are named in honour of a former Chairman of the Board of Governors of Carleton University and are awarded to outstanding students entering or proceeding from one year to another of a full-time undergraduate program at Carleton. The scholarship may be renewed for a total of four years provided sufficient academic standing is maintained. Established 1979.

Harry S. Southam Scholarships

These scholarships are named in honour of a former Chancellor of Carleton University and are awarded to outstanding students entering or proceeding from one year to another of a full-time undergraduate program at Carleton. The scholarship may be renewed for a total of four years provided sufficient academic standing is maintained. Established 1975.

Mercy Neal Southam Entrance Scholarships

Entrance scholarships will be awarded annually if merited, to students entering the First year of arts, social sciences, journalism, commerce, science, engineering or architecture at Carleton University. Established in 1949. Under the terms of bequest of the late Wilson Mills Southam, the scholarships are in memory of his grandmother, Mercy Neal Southam.

Award of the Embassy of Spain

For excellence in the study of Spanish, a book award is offered annually by the Spanish Embassy in Canada. Established 1960.

E.W.R. Steacie Scholarships

These scholarships are named in honour of a former Chairman of the Board of Governors of Carleton University and are awarded to outstanding students entering or proceeding from one year to another of a full-time undergraduate program at Carleton. The scholarship may be renewed for a total of four years provided sufficient academic standing is maintained. Established 1975.

Ben and Mary Steinberg Foundation Scholarships

Awarded to outstanding students who may be in need of financial assistance in the furtherance of their studies. Established 1978.

Harry Stevinson Scholarship in Aeronautical Engineering

Value \$1,000. Awarded annually on the recommendation of the Chairman of the Department of Mechanical and Aeronautical Engineering to a student enrolled in aeronautical engineering at Carleton University. Donor: Leigh Instruments Limited. Established 1980.

Irene Gertrude Stitt Scholarship Fund

Awarded annually to students of high proficiency proceeding from one year of course to another at Carleton University. The fund has been made possible by a bequest of the late Edith May Stitt, in memory of her sister, Irene G. Stitt. Endowed 1966.

Awards of the Ambassador of Switzerland to Canada
For excellence in the study of French, German, and Italian, book awards are offered annually by the Ambassador of Switzerland to Canada. Established 1953.

Thomson Award for Reporting

Value \$300. Awarded annually to a student proceeding from Third- to Fourth-year Honours journalism judged to be outstanding in reporting. Donor: Thomson Newspapers. Established 1970.

Thorne, Riddell & Company Scholarships

Two scholarships valued at \$400 and \$300 each. The scholarship of \$400 is awarded annually to the Third-year business student with the highest average marks. The scholarship of \$300 is awarded to the Third-year business student with the second highest average marks. Donor: Thorne, Riddell & Company. Established 1969.

Henry Marshall Tory Award

Presented annually to an outstanding graduating student who has shown a high degree of academic application, has indicated an interest in the University by broad participation in extracurricular activities of a constructive nature, has indicated qualities of leadership, and has attended Carleton University for at least three Winter sessions. Each candidate is nominated by three members of the Student's Association and selection is made by a committee composed of the President of the University, a member of the Faculty chosen by Senate, the Director of Student Awards, and three students chosen by the Student's Council. The winner's name is inscribed on the master trophy and the student receives a miniature replica. The award was established in 1950 by the Students' Council of Carleton University.

Henry Marshall Tory Scholarships

These scholarships are named in honour of the first President of Carleton University and are awarded to outstanding students entering or proceeding from one year to another of a full-time undergraduate program at Carleton. The scholarship may be renewed for a total of four years provided sufficient academic standing is maintained. Established 1975.

Touche, Ross & Company Scholarship

Value \$250. Awarded to a student who is proceeding from one year of course to another in the degree program in business, and who intends upon graduation to study for the qualification of chartered accountant. The award will be made to the student whose character, ability, academic records, and other qualities are, in the opinion of the School of Business, those needed by a chartered accountant. Preference will be given to a student with these qualifications who will be entering the final year of course. Applications should be submitted to the Chairman of the School of Business before March 1. Donor: Touche, Ross & Company. Established 1962.

Undergraduate In-Course Scholarships for Part-Time Students

Carleton University offers a number of scholarships, tenable at the University, to students continuing in undergraduate studies who have completed the equivalent of at least five courses through part-time study beyond entrance requirements, at the University, and have demonstrated a high potential for university studies. To be eligible the candidate must have maintained a high academic standing and be registered as a part-time student. Value: Academic tuition fee for one or more courses (non-transferable).

Awards of the Embassy of the Union of Soviet Socialist Republics

For excellence in the study of Russian, awards are offered annually by the Embassy of the Union of Soviet Socialist Republics. Established 1963.

University Women's Club of Ottawa Scholarships

Three scholarships valued at \$365 each. Awarded annually to women students at Carleton University continuing in undergraduate studies who have completed the equivalent of at least five courses beyond entrance requirements at the University and have demonstrated a high potential for university studies. To be eligible the candidate must have maintained a high academic standing and be registered as a part-time student. Donor: University Women's Club of Ottawa. First established in 1952 in honour of Dr. Alice E. Wilson.

Vered Foundation Scholarships

Two scholarships valued at \$500 each; one awarded annually, if merited, to an engineering student in civil engineering; the second scholarship awarded annually, if merited, to a student who is proceeding from one year of course to another in a degree program in political science. Donor: The Vered Foundation of Ottawa. Established 1975.

L.N. Wadlin Scholarship in Mathematics

Value \$500. Awarded annually to a student proceeding from one year to another at Carleton University who has shown excellence in the study of mathematics. Donor: The late Lorenzo N. Wadlin. Endowed 1965.

Wainwright Scholarships

Awarded annually to a student or students studying Canadian history. Donor: Miss Dora I.I.S. Wainwright. Endowed 1974, revised 1980.

Jessie and Wreford Watson Award in Geography

Awarded annually to the outstanding student entering the final year of Honours Geography at Carleton University. Dr. Wreford Watson, then Chief Geographer of Canada, founded Geography at Carleton in 1949. One year later he was joined by Mrs. Watson and together they lectured in Geography at Carleton until 1954. Donors: Friends, faculty and alumni of the Department of Geography. Endowed 1980.

James E. Whenham Award

Value \$200. Awarded annually to a student of superior standing enrolled in the School of Architecture, Carleton University. Donor: James E. Whenham. Established 1968.

Kingston Whig-Standard Award in Reporting

Value \$250. Awarded annually to the journalism student in any reporting course for the story judged the best single assignment turned in. Donor: Kingston Whig-Standard. Established 1970.

Elizabeth White Memorial Award for Zoological Collection

Value \$50, together with a book prize. Awarded annually, if merited, on the recommendation of the Department of Biology to a student who has submitted, by November 1, an outstanding collection of insects or arachnids, properly preserved and identified. Donor: Anonymous. Established 1953.

Wild Leitz Canada Limited Award in Engineering

A set of stainless steel drawing instruments is awarded annually to a student in First-year engineering at Carleton University judged most worthy of the award by the Faculty of Engineering. Donor: Wild Leitz Canada Limited. Established 1960.

Wilgar Memorial Award in English

A book prize to be awarded to a Carleton University undergraduate who has shown excellence in essay-writing. Established 1951, in memory of the late W.P. Wilgar, assistant professor of English at Carleton University, 1948-50. Endowed 1952.

Kenneth R. Wilson, Memorial Award for Journalism Graduates

Value \$900. Offered annually to a student graduating in journalism who, in the opinion of a board of selection, shows exceptional promise as a future reporter and interpreter of Canadian affairs. Endowed 1953, in memory of Kenneth R. Wilson, Ottawa Editor of *The Financial Post*, by a group of his personal friends.

Morley E. Wilson Scholarship

Awarded annually to an outstanding student in Honours geology who is proceeding from one year of course to another at Carleton University. Donor: The late M.E. Wilson, Sessional Lecturer in Geology at Carleton University, 1947-1953. Endowed 1975.

Herbert I. Wolf Award

Value \$85. Awarded annually to an undergraduate student enrolled in a full-time program at Carleton University. The award is given in memory of Herbert I. Wolf, the son of the donor, who died in active service. Donor: George M. Wolf. Endowed 1981.

Gordon J. Wood Scholarships in English

Value \$350 each. One to a full-time student in English proceeding from Second to Third year, who has taken at least three courses in English at Carleton; one to a full-time student in English proceeding from Third to Fourth year, who has taken at least four courses in English at Carleton University. The assessment is made on the basis of overall grades for the year, including Summer courses (if any) from the previous Summer. English marks will be given particular consideration if necessary in the ranking of qualifying students. Donor: Gordon J. Wood, Professor of English, Carleton University. Established 1974.

Hume Wrong Scholarship

Established by Mrs. Hume Wrong in memory of her late husband. Awarded annually to the leading student in the Third year of History or Political Science, proceeding to his or her final Honours year. Donor: The late Mrs. Hume Wrong. Endowed 1962.

Xerox Canada Inc. Award

Value \$1,000. Awarded to a Canadian citizen or landed immigrant entering the final year of the degree course in business. The sum of \$750 will be awarded to the recipient and \$250 for the unrestricted use of the School of Business. Should a graduate program be established in the School of Business at a later date this scholarship will be awarded as a fellowship in the course leading to the most advanced degree offered. Donor: Xerox Canada Inc. Established 1970, revised 1978.

Nathan and Sara Zelikovitz Award

Value \$40. Awarded to an outstanding undergraduate student registered in a full-time program at Carleton University. Donor: Nathan Zelikovitz. Endowed 1979.

Bursaries

Evelyn Aldridge Bursary in Economics

Awarded annually to a deserving and needy student or students in any year of major or honours studies in the Department of Economics at Carleton University. Endowed in 1980 in honour of Evelyn Aldridge, Department Secretary and Administrator, in recognition of 20 years of devoted service to the University and to the Department of Economics, its faculty and students.

A. Andras Memorial Bursary

Awarded annually to an undergraduate student attending Carleton University, who is in need of financial assistance and whose parent is a member of a trade union which is affiliated to the Canadian Labor Congress. Endowed 1972, in memory of the late Mr. A. Andras who was a member of Carleton's Board of Governors.

ATA Trucking Industry Educational Foundation Bursary Fund

To provide bursaries for First- or Second-year students who, due to extenuating circumstances, are deserving of financial assistance, and without such assistance would be unable to continue their studies. Donor: ATA Trucking Industry Educational Foundation Inc. Established 1959.

Atkinson Charitable Foundation Bursary Fund

Awarded to assist students of Carleton University. Terms of award are as follows: (1) in addition to scholastic merit and financial need, goal and promise will be considered in selecting recipients. (2) Candidates must be residents of Ontario. (3) An applicant must have completed at least one academic year and be enrolled as a full-time undergraduate in any course at Carleton University. (4) For one of the awards, preference will be given to candidates intending later to pursue studies in theology. Donor: The Atkinson Charitable Foundation. Offered for the first time in 1951, as an experiment in the provision of financial aid to students.

F. Luella Barrigar Bursaries

Awarded annually to students entering Carleton University or proceeding from one year of course to another, who are in financial need. Some preference shall be given to students with an interest in music. The bursaries are provided through the bequest of the late Miss F. Luella Barrigar, a teacher of music at the Ottawa Teachers' College. Donor: The late F. Luella Barrigar. Endowed 1981.

Nurse "Bill" Bayley Memorial Fund

The fund is to provide for assistance in emergencies for students requiring dental and medical care. Endowed 1974 by friends and students, this award is named in honour of the late Kathleen Bayley, a member of the Counselling and Health Services from 1965 to the time of her death June 7, 1973.

R.A. Beamish Bursary

Awarded annually to a student entering or progressing from one academic year to another who, without financial assistance, could not continue his or her formal education. To be eligible, an applicant must be a resident of one of the eleven eastern counties of Ontario (Renfrew, Frontenac, Lanark, Leeds, Carleton, Grenville, Russell, Dundas, Prescott, Glengarry, Stormont). Donor: The R.A. Beamish Foundation. Endowed 1951.

Euphemia Bell Bursary Fund

To provide bursaries to deserving students in financial need. The fund has been made possible by a bequest of the late Euphemia Bell. Endowed 1978.

Beta Sigma Phi Sorority Bursary

Value \$500. To be awarded to a deserving female student. Preference will be given to a student majoring in English. Donor: The City Council of Beta Sigma Phi Sorority. Established 1964. Revised 1981.

J.P. Bickell Foundation Bursary Fund

The trustees of the J.P. Bickell Foundation have established bursaries in the Faculty of Science. An applicant must be taking a normal sequence of courses leading to a degree in geology and must have competent academic standing. Carleton students may obtain full details of the bursary from the Awards Office. Donor: J.P. Bickell Foundation, Toronto. Established 1956.

Birks Family Foundation Bursaries

The Birks Family Foundation has established a plan of annual contributions to the student aid fund of recognized Canadian universities and colleges for the creation of the Birks Family Foundation Bursaries. The bursaries are awarded by the foundation on the recommendation of the University Scholarship Committee and are not restricted to faculty or year and may be renewed. The number and amount of such awards may vary annually, depending upon the funds available for the purpose from the Foundation.

Gretta Boyd Memorial Bursary

Value \$100. First awarded in 1969-70 to an undergraduate student in any year or faculty with good academic standing and in need of financial assistance. Donor: Kiwanis Club of City View. Established 1969 in memory of the late Gretta Boyd.

BP Canada Bursaries

Value \$1,000. Awarded annually to deserving undergraduate or graduate students studying or doing research in areas related to BP Canada's activities (business, economics, geology, chemistry, physics and engineering), and who are in need of financial assistance. Donor: BP Canada. Established 1975, revised 1980.

Nathan Braham Bursary

Awarded annually to an entering or returning student, with superior academic standing who is in need of financial assistance. The bursary has been made possible by a bequest of Mr. Nathan Braham. Endowed 1964.

Donald William Buchanan Bursary

Awarded annually to a student entering or progressing from one academic year to another, and who is in need of and deserving of assistance to continue studies as a full-time student. Donor: The late Donald William Buchanan. Endowed 1967.

Carleton University Academic Staff Association Bursaries

Four bursaries valued at \$300 each. Awarded annually to full-time students proceeding from one year of course to another and requiring financial assistance. Donor: Carleton University Academic Staff Association. Established 1977.

Carleton University Faculty Wives Association Bursary

Value \$250. Awarded to a student in good academic standing and in financial need, who is proceeding from First to Second year of studies at Carleton University. Donor: Carleton University Faculty Wives Association. Established 1977.

Carleton University Refugee Student Bursary

Value \$2,500. To be awarded annually on the recommendation of the World University Service of Canada to a refugee student entering or continuing his program at Carleton University, who is in need of financial assistance.

Edward Godfrey Carty Bursary

Awarded annually to a student in course, specifically in engineering, who would not otherwise be able to proceed without delay to a higher year within the University. Donor: Mrs. E.G. Carty, in memory of her husband, Edward Godfrey Carty. Endowed 1964.

Maurice Frederick Carty Bursary

Awarded annually to a student in course who would not otherwise be able to proceed without delay to a higher year within the University. Donor: Mrs. E.G. Carty, in memory of her son, Maurice Frederick Carty. Endowed 1957.

Corporation House Limited Bursary

To be awarded annually to a good student in need of financial assistance, who is, in addition, a son or daughter of a parent employed in the public service of Canada, or in a federal corporation or agency, or serving in the Armed Forces of Canada. Donor: Corporation House Limited. Established 1962.

Engineers' Wives Association Bursary

Value \$700. Awarded annually to deserving students enrolled in the Faculty of Engineering. Donor: Engineers' Wives Association of Ottawa. Established 1959.

Lillian Fallis Bursary

Value \$500. Awarded annually to a deserving student(s) proceeding from one year of course to another in the School of Business at Carleton University and who is in need of financial assistance. Donors: The family of the late Duncan H. Maclaren, a graduate of the School of Business. Endowed in 1980 in honour of Mrs. Lil Fallis a longtime member of staff in the school in recognition of her special interest and support of students.

C.A. Fitzsimmons and Company Limited Bursary

Value \$100. Awarded annually to a competent student entering Carleton University who, without financial assistance, could not continue his or her formal education. Donor: C.A. Fitzsimmons and Company Limited, Ottawa. Established 1960.

Friends of Carleton Bursary Fund

A sum to provide bursaries for deserving students in need of financial assistance. This fund has been made possible by contributions from the Friends of Carleton University. Established 1967.

Mary C. Grant Bursary (Laurentian Chapter, I.O.D.E.)
Value \$1,125. Awarded annually to not more than three students who require financial assistance. The bursary has been endowed in honour of Mary C. Grant. Donor: The Laurentian Chapter, I.O.D.E. Established 1962, revised 1980.

IBM-Canada Bursary Program

IBM Canada Ltd. makes an annual grant of \$2,000 for bursaries to students registered in a full-time course at the University who have satisfactory standing and who demonstrate financial need. Application may be made through the Awards Office. Donor: IBM Canada Limited. Established 1963. Revised 1979.

Knights of Pythias, Aurora Lodge No. 53 Bursary

Value \$100. Awarded to a good student, progressing from one year of course to another, who needs financial assistance to continue his or her studies. Donor: Knights of Pythias, Aurora Lodge No. 53. Established 1960.

Patricia Larmonth Memorial Bursary

Value \$100. Awarded annually to a deserving student enrolled at Carleton University, and who is in need of financial assistance. Donor: Ottawa Women's Canadian Club. Established 1971.

Litton Systems (Canada) Limited Bursaries

Two bursaries valued at \$150 each. Awarded annually to students with good academic standing, enrolled in the Faculty of Engineering, and who are in need of financial assistance. Preference will be given to those students who plan to major in Electrical or Mechanical Engineering. Donor: Litton Systems (Canada) Limited. Established 1967.

Jean A. Loates Bursary

Awarded annually to a deserving student entering Carleton University or proceeding from one year of course to another and requiring financial assistance to complete his or her studies. Donated by friends and colleagues of Jean Loates to mark her retirement in 1977. Mrs. Loates is a Carleton graduate and had a twenty-six year career at the University, first as Student Personnel Officer and from 1966 as Awards Officer. Endowed 1977.

Men's Canadian Club of Ottawa Bursary

Value \$400. Awarded annually to student(s) in need of financial assistance. The object of the Canadian Club is to foster interest in and knowledge of Canada and Canadian affairs. Donor: The Men's Canadian Club of Ottawa. Established 1981.

Ontario Industrial Roofing Contractors Association Bursary

Value \$500. Awarded annually to a student or students, enrolled in architecture, of good academic standing, who require(s) financial assistance. Donor: Ontario Industrial Roofing Contractors Association. Established 1980.

Ottawa Citizens' War Services Committee Bursary

An annual sum of approximately \$300 is available to assist veterans, their dependents or descendants, who

are students in good standing at Carleton University and are in need of financial assistance. Endowed 1948.

Ottawa Superfluity Shop Bursaries

An annual sum of approximately \$1,500 is available to provide bursaries for veterans of World War I or World War II, or for the descendants of such veterans, who are students in good standing at Carleton University and in need of financial assistance. Endowed 1947.

Phillips Bursary

The annual yield of a fund of \$5,000 made available to Carleton University by Miss L.A. Phillips. The bursary is to be awarded each year to a student with good academic standing who is in need of financial assistance. Endowed 1962.

James H. Ratray Bursary Fund

To provide bursaries for students in science and engineering, with certain areas of preference. Donor: The late James H. Ratray, M.C. Endowed 1961.

J. Lansing Rudd Bursary

Awarded annually to a good student progressing from one year of course to another who needs financial assistance to continue his or her studies. Donor: The late J. Lansing Rudd. Endowed 1967.

Abraham and Mary Shaffer Bursary

Awarded annually to a good student entering Carleton University or proceeding from one year of course to another, and requiring financial assistance to complete his or her studies. Donor: The late Abraham Shaffer. Endowed 1967.

Z. Matthew Stankiewicz Bursary

Awarded annually to a deserving student, requiring financial assistance, who is entering or is enrolled in the School of Architecture at Carleton University. Donors: Friends, relatives and associates of the late Z. Matthew Stankiewicz. Endowed 1980.

Ormond M. Stitt Bursary Fund

To provide bursaries for deserving students in need of financial assistance. The fund has been made possible by a bequest of the late Miss Edith May Stitt, in memory of her brother, Ormond M. Stitt. Endowed 1966.

Isabella Ellen Taylor Memorial Bursary Fund

To provide bursaries to undergraduates in any year of course who are in need of financial assistance and have good academic standing. Donor: The late Daisy Elizabeth Taylor. Endowed 1969.

C.R. Thompson Bursary

Value to be announced. Awarded annually to a deserving student proceeding from one year of course to another in the Faculty of Engineering, who is in need of financial assistance. Endowed in 1980 in honour of C.R. Thompson, Associate Dean of Engineering in recognition of his contributions to the Faculty of Engineering and its students.

University General Bursary Fund

The fund is to provide bursaries in aid of students with satisfactory academic standing who, in the First or

subsequent course-years, are in need of financial assistance. Established by the University in 1954.

Wainwright Bursary

Awarded annually to a student or students studying Canadian history. Donor: Miss Dora I.I.S. Wainwright. Endowed 1974, revised 1980.

Honourable Cairine Wilson Bursary

Awarded annually to a good student entering Carleton University or proceeding from one year of course to another and requiring financial assistance to complete his or her studies. The bursary has been made possible by a bequest of The Honourable Cairine Wilson, first woman member of the Canadian Senate. Endowed 1962.

Publication Grant

The John Porter Publication Grant

This grant, established in 1979 by friends and colleagues of the late John Porter, is open to authors of book-length works. The authors must be members of the Carleton University community, whose manuscripts have been accepted by a reputable publisher, or persons not affiliated with Carleton University, whose manuscripts have been accepted for publication in the Carleton Library series. An annual award of \$1,000 to be applied against the costs of publication of the work, will be determined by a Grants Committee appointed by the Vice President (Academic). Applications or nominations having been received by the committee, the recipient will be selected by the committee on the basis of overall merit and contribution to the literature dealing in aspects of Canadian society. The committee may decline to make an award in a given year for lack of meritorious candidates. The recipient will be expected to deliver a university public lecture dealing in the topic of the book at or near the time of publication.

Loan Funds

John Parker Loan Fund

To provide loans not exceeding \$1,000 each to students who have completed at least one successful year at Carleton University and who are not eligible to receive assistance from other sources of financial aid. This fund also provides emergency loans for sixty days or less to students whose funds from other sources have been delayed. Application forms are available to students following interviews with the Awards Officer.

Government Aid programs:

See Student Services p. 21.

Further information regarding existing sources of scholarships, awards, bursaries and loans may be had from the Awards Office, telephone 231-3735.

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G.F. Singer, B.A. (Loyola) M.Environmental Studies (York)
Sessional Lecturer in Industrial Design

J.J. Sloan, B.Sc., Ph.D. (Queen's)
Adjunct Professor of Chemistry

A. Smith, B.Sc., M.Sc., Ph.D. (McGill)
Research Associate in Psychology

I.C.P. Smith, B.Sc., M.Sc. (Manitoba) Ph.D. (Corpus Christi)
Adjunct Professor of Chemistry

Anne M. Squire, M.A. (Carleton) D.D. (United Theological College)
Adjunct Professor of Religion

N.M. Standen, B.A.Sc. (British Columbia) M.Eng. (McGill)
Sessional Lecturer in Engineering

R.W. Stemp, B.A.Sc. (Toronto)
Sessional Lecturer in Geology

C.D. Stothart, B.Sc. (New Brunswick)
Adjunct Professor of Engineering

S. Stuchly, B.Sc. (T.U. Glivice) M.Sc. (T.U. Warsaw) D.Sc. (Pol. Acad. Sci. Warsaw)
Adjunct Professor of Engineering

F. M-K. Sum, M.B.A. (McGill)
Sessional Lecturer in Marketing

G. Swinton, B.A. (McGill)
Adjunct Professor of Art History

G.D. Taylor, B.A., M.A. (British Columbia)
Adjunct Professor of Geography

D.R. Townsend, B.Sc., Ph.D. (Queen's of Belfast)
Sessional Lecturer in Engineering

R. Trites, B.A. (Gonzaga) M.A., Ph.D. (Ottawa)
Adjunct Professor of Psychology

M.C. Tweedie, M.P.A. (Queen's)
Sessional Lecturer in Human Resources

W. Tyson, B.A.Sc. (Toronto), Ph.D. (Cambridge)
Sessional Lecturer in Engineering

Karel van der Veen, P-O (A.I.V. Eindhoven) MO-A (Tilburg) B.Sc., M.Sc. (Utrecht)
Sessional Lecturer in Industrial Design

J.S. Wadden, B.Sc., M.Sc., Ph.D. (Carleton)
Senior Demonstrator in Physics

Donald Wallace, B.A., B.Mus. (Carleton)
Sessional Lecturer in Music

D.W. Webster, B.Sc. (Ottawa)
Sessional Lecturer in Engineering

R.K. Webster, C.A.
Special Lecturer in Accounting

J. Wegner, B.A. (Indiana) M.Sc. (Carleton)
Laboratory Co-ordinator in Biology

T.E. Whalen, B.A. (California) M.A. (British Columbia) Ph.D. (Dalhousie)
Research Associate in Psychology

J. Wheeler, B. Landscape Arch. (Syracuse)
Sessional Lecturer in Architecture

R. Wilson, B.A. (Toronto) LL.B. (Queen's) of the Bar of Ontario
Sessional Lecturer in Law

D.M. Wood, M.A. (Toronto) Ph.D. (McMaster)
Adjunct Professor of Biology

A. Woodsworth, B.Sc. (British Columbia) M.Sc., Ph.D. (Queen's)
Sessional Lecturer in Physics

E.W. Wright, B.A.Sc. (Toronto) M.Sc., Ph.D. (Illinois)
Adjunct Professor of Engineering

J. Wyllie, M.P.A. (Carleton)
Sessional Lecturer in Human Resources

The Institution

1942

Ottawa Association for the Advancement of Learning established to develop Carleton College. At first the College offered only evening classes in introductory university subjects, with some courses in public administration.

1943

Ottawa Association for the Advancement of Learning Incorporated.

1945

Beginning of day classes and full-time teaching. Establishment of the Faculty of Arts and Science, including courses in journalism, and First-year engineering.

1946

Move from rented premises to the First Avenue campus, formerly Ottawa Ladies' College. First degrees awarded, three in journalism and three in public administration.

1947

The College committed itself to complete Major and Honours courses, the Third year of the program being offered for the first time in 1947-48, the Fourth year in 1948-49, and the Fifth (Honours) year in 1949-50.

1949

First degrees in arts, science and commerce awarded. Formation of Senate.

1950

First Honours degrees in arts and science awarded.

1952

The Carleton College Act 1952 passed by the Ontario Legislature. This changed the corporate name to Carleton College. It also confirmed the power to grant degrees.

1952-53

Property for new campus acquired, on the site between the Rideau River and the Rideau Canal.

1953

Establishment of the School of Public Administration.

1954

Appointment of Architectural Associates for Carleton to prepare first master plan and to design first group of buildings. First honorary degree of LL.D. conferred on Dag Hammarskjöld, Secretary-General of the United Nations.

1955

First Master's degree awarded.

1957

The Carleton University Act, 1957. Establishment of the School of Engineering. Establishment of the Institute of Canadian Studies.

1959

Move to Rideau River campus, following construction of the Henry Marshall Tory Building (Science), the Maxwell MacOdrum Library, and Norman Paterson Hall (Arts).

1961

First degrees in engineering awarded. First Ph.D. degree awarded.

1962

Students accommodated in residences on campus for the first time.

1963

Reorganization into Faculties of Arts, Engineering, Science, and Graduate Studies. Committee on Soviet and East European Studies established.

1966

Establishment of the School of International Affairs. Establishment of the School of Commerce. Comparative Literature Committee established.

1967

Integration of St. Patrick's College as a division of the Faculty of Arts. School of Social Work became part of the Faculty of Arts.

1968

Establishment of the School of Architecture. New University Government established with student representatives at all levels of the University system from Department to Board of Governors. First year of the academic exchange agreement between Carleton and the University of Leningrad.

1969

Free choice First year initiated for the Faculty of Arts. Linguistics Committee established.

1970

Agreement completed between Carleton and University of Ottawa to accept "visiting students" at the graduate level. Biochemistry degree program initiated.

1971

Unified Liberal Arts Program established for St. Patrick's College. General Science Degree program established with Environmental Studies program available.

1972

School of Social Work is accommodated on the Rideau River campus. A one-year French program offered at St. Patrick's College for students wishing to improve their knowledge of the French language and culture by one year's intensive study. Exchange program with the University of Chambéry, France.

1973

First degrees in architecture awarded. St. Patrick's College moved to a new facility on the Rideau River campus. Establishment of the School of Industrial Design. New athletics complex, with a fifty-metre pool and a fitness centre opened.

1974

Faculty of Graduate Studies renamed Faculty of Graduate Studies and Research. School of International Affairs renamed The Norman Paterson School of International Affairs. First courses offered off campus in Lanark County and downtown Ottawa. St. Patrick's College division held first Convocation ceremony at new location on Rideau River campus. Master of Journalism program approved for September 1974. Master of Arts program in anthropology approved for September 1975. Master of Arts program in religion approved. Program leading to Certificate in Teaching of English as a Second Language established. Academic exchange between Carleton and the Institute of Cultural Relations, Budapest, Hungary, September 1974.

1975

Lester B. Pearson Chair for International Affairs approved. Establishment of Gerhard Herzberg Lecture Series in Science. First students enrol in joint Master of Public Administration program, offered in conjunction with the University of Ottawa. Scholarships established for part-time students. CKCU-Radio Carleton has FM licence approved. New undergraduate programs introduced in Canadian studies and computing science. A program in film studies approved. First Dunton Alumni Award presented.

1976

Creation of The Paterson Centre. Division of the Faculty of Arts into two separate faculties: the Faculty of Arts and the Faculty of Social Sciences. First Master of Journalism degrees awarded.

1977

Criminology and Corrections Program begun at St. Patrick's College, April. Exchange programs with two Nigerian universities: Ahmadu Bello University in Zaria and University of Ife in Ife.

1978

School of Continuing Education established. Credit courses offered on cable television, September. Institute of Biochemistry established.

1979

St. Patrick's College ceased to operate as an academic unit of the University. Academic programs of the College continue as University programs, except for the Unified Liberal Arts Program. Department of Film Studies established.

First Marston LaFrance Memorial Lecture presented; Ph.D. program in English and French Canadian literature begun; joint Ph.D. program in economics with University of Ottawa established.

1980

Undergraduate School of Computer Science established.

1981

Establishment of the Ottawa-Carleton Institute for Research and Graduate Studies in Chemistry, a joint program with the University of Ottawa. Establishment of a joint Ph.D. program in economics with the University of Ottawa.

Enrolment

In the fall of 1981 there were 8,800 undergraduate students registered at the University; undergraduate students taking courses on a part-time basis numbered 5,400.

Presidents

1942-47

Henry Marshall Tory

1947-55

Murdoch Maxwell MacOdrum

1955-56

James Alexander Gibson (*Acting*)

1956-58

Claude Thomas Bissell

1958-72

Arnold Davidson Dunton

1972-78

Michael Oliver

1979

James Downey (*Pro tempore*)

January 1—May 15

1979-

William Beckel

Chancellors

1952-54

Harry Stevenson Southam

1954-68

Chalmers Jack Mackenzie

1969-73

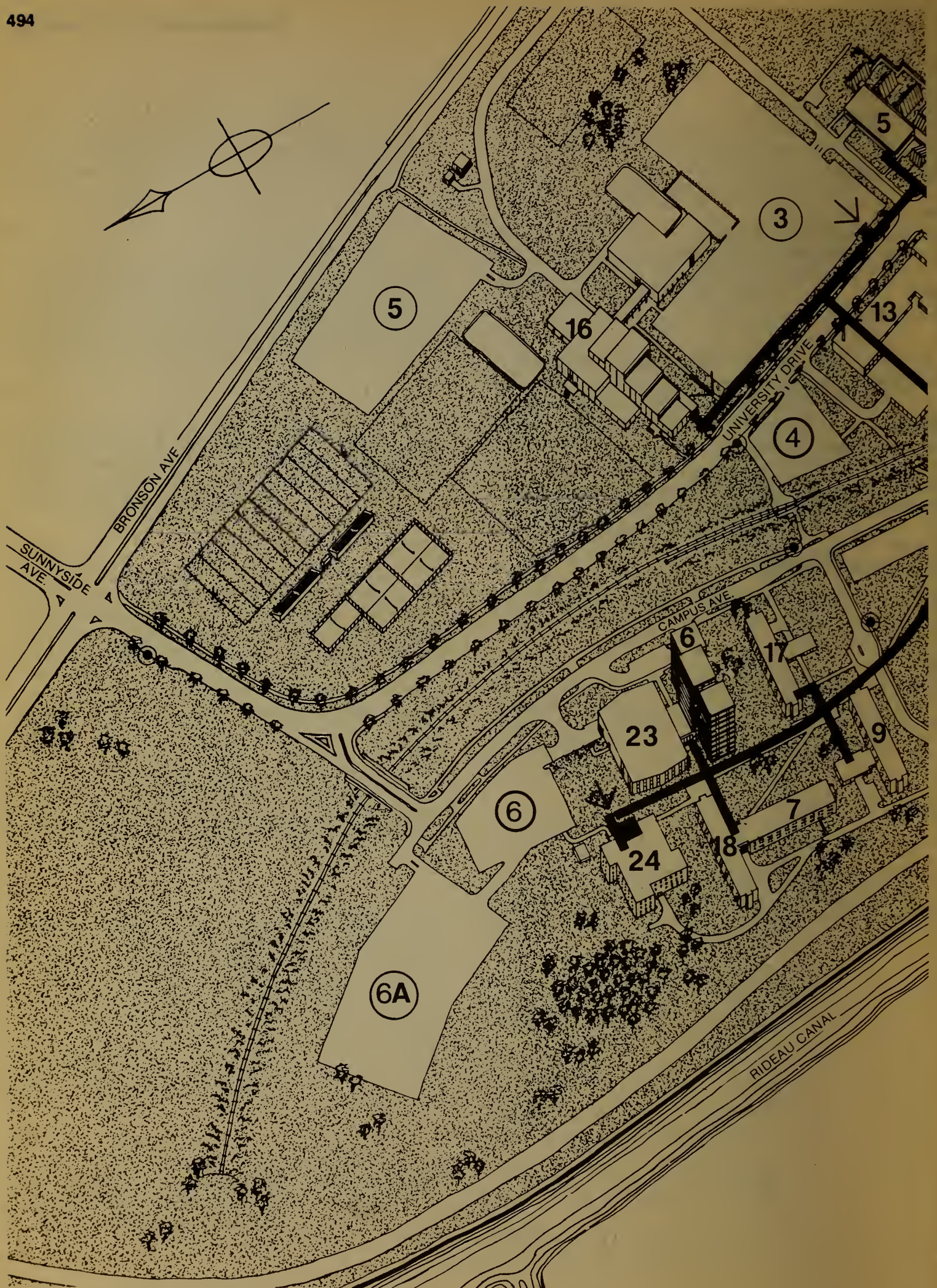
Lester Bowles Pearson

1973-80

Gerhard Herzberg

1980-

Gordon Robertson

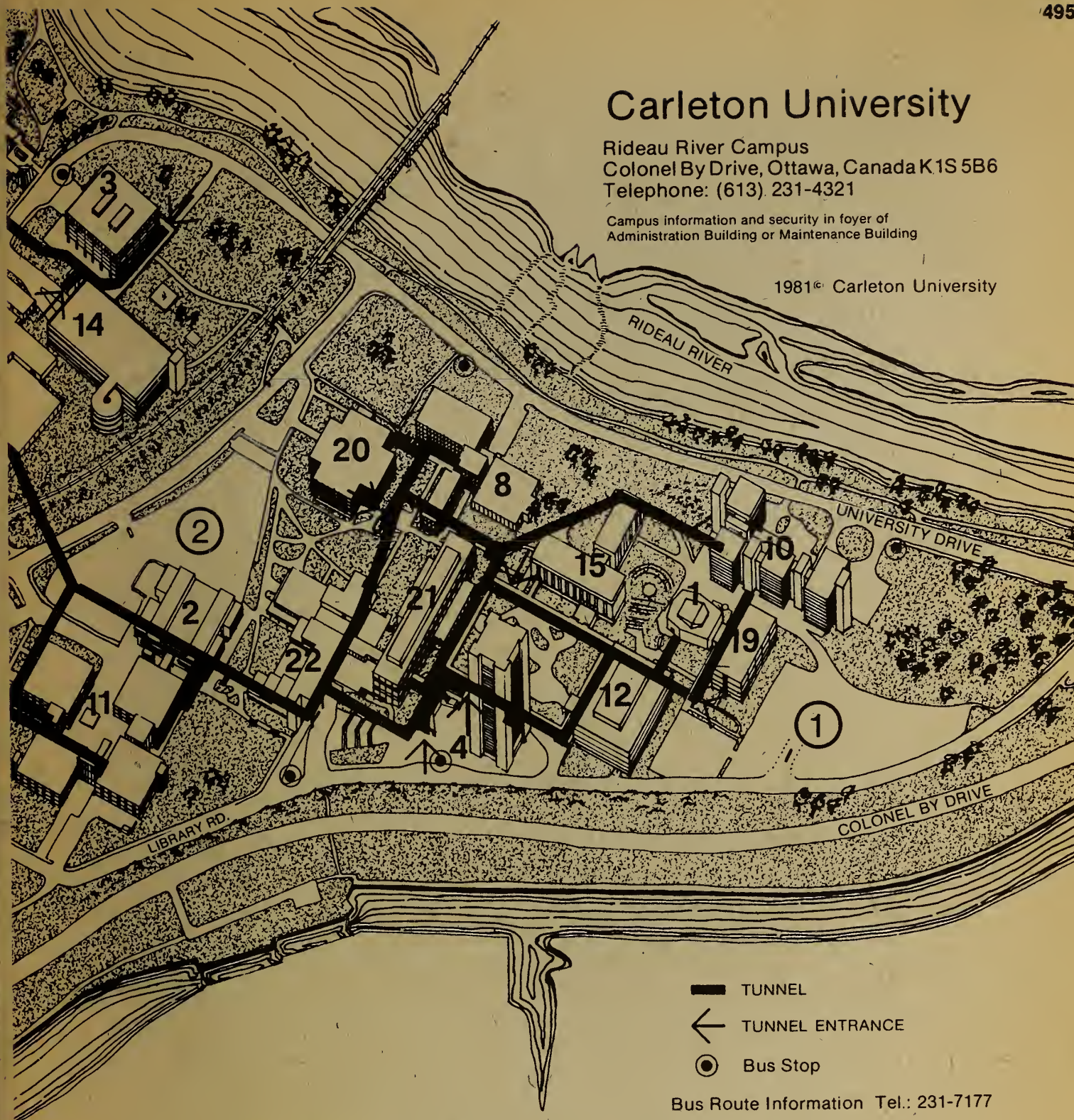


Carleton University

Rideau River Campus
Colonel By Drive, Ottawa, Canada K1S 5B6
Telephone: (613) 231-4321

Campus information and security in foyer of
Administration Building or Maintenance Building

1981© Carleton University



Bus Route Information Tel.: 231-7177

Carleton University Campus

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|-------------------------------|--------------------------------|----------------------------|
| 1. Alumni Theatre | 10. Loeb Building | 19. Southam Hall |
| 2. Architecture Building | 11. Mackenzie Building | 20. Steacie Building |
| 3. Administration Building | 12. MacOdrum Library | 21. Tory Building |
| 4. Arts 1 Tower | 13. Maintenance Building | 22. University Centre |
| 5. Environmental Laboratories | 14. Parking Garage | 23. University Commons |
| 6. Glengarry House | 15. Paterson Hall | 24. St. Patrick's Building |
| 7. Grenville House | 16. Physical Recreation Centre | |
| 8. Herzberg Laboratories | 17. Renfrew House | |
| 9. Lanark House | 18. Russell House | |

Parking Lots (2), (5), etc.

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1982

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6	7	8	9	10	11	12	3	4	5	6	7	8	9
13	14	15	16	17	18	19	10	11	12	13	14	15	16
20	21	22	23	24	25	26	17	18	19	20	21	22	23
27	28	29	30	31			24	25	26	27	28	29	30
May							June						
1	2	3	4	5	6	7				1	2	3	4
8	9	10	11	12	13	14	5	6	7	8	9	10	11
15	16	17	18	19	20	21	12	13	14	15	16	17	18
22	23	24	25	26	27	28	19	20	21	22	23	24	25
29	30	31					26	27	28	29	30		
July							August						
					1	2		1	2	3	4	5	6
3	4	5	6	7	8	9	7	8	9	10	11	12	13
10	11	12	13	14	15	16	14	15	16	17	18	19	20
17	18	19	20	21	22	23	21	22	23	24	25	26	27
24	25	26	27	28	29	30	28	29	30	31			
31													
September							October						
					1	2							1
4	5	6	7	8	9	10	2	3	4	5	6	7	8
11	12	13	14	15	16	17	9	10	11	12	13	14	15
18	19	20	21	22	23	24	16	17	18	19	20	21	22
25	26	27	28	29	30		23	24	25	26	27	28	29
30	31												
November							December						
	1	2	3	4	5					1	2	3	
6	7	8	9	10	11	12	4	5	6	7	8	9	10
13	14	15	16	17	18	19	11	12	13	14	15	16	17
20	21	22	23	24	25	26	18	19	20	21	22	23	24
27	28	29	30				25	26	27	28	29	30	31

